The Handbook on Painting

THE HANDBOOK ON PAINTING

NATIONAL LEAD COMPANY

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Introduction

IF you want to know how to paint a house or other building and how much paint it will take; if you want to know how to finish a wall or floor, how to paint metal, how to paint masonry, how to paint a boat—*this book will tell you.* It is a veritable storehouse of practical paint knowledge, equally valuable as a guide to the uninitiated and as a reference work for the architect, engineer, building manager, painter and other experienced users of paint.

In saying "this book will tell you," it is not implied that the mere following of directions will turn a novice into a skilled painter. This is not possible. It would be just as ridiculous to claim that reading the recipes in a cook book will turn a beginner into an expert chef.

Painting is an art and there are many things about the art of painting which require study, observation and constant practice. It always pays, therefore, to hire an experienced painter if one is available. The superior knowledge of the man who "knows how" is worth whatever extra money it may cost to hire him. Do not, however, allow yourself to be deprived of

the advantages of made-to-order paint simply because a painter who knows how to mix white-lead into paint is not within easy reach, as is the case sometimes in the smaller towns.

The Handbook on Painting gives all necessary mixing and painting directions. They are easy to follow. Attention is called particularly to the directions for doing small jobs given on page 122. By the method suggested, white-lead can be mixed into paint in a jiffy and you are assured of the same durable lead-and-oil paint for the small jobs that is used for the big ones.

CHAPTER I

Exterior Wood Painting

The right prescription for exterior painting on wood is an old one—simply pure white-lead, pure linseed oil, turpentine and drier. Because it is mixed to order, lead-and-oil paint can be adapted to meet all surface and weather conditions. It can also be colored to an unlimited number of tints and shades simply by the addition of the proper tinting materials, known as colors-in-oil.

Paint made of pure white-lead and pure linseed oil forms a tough, tenacious film that never scales off, but wears down smoothly. When the time comes to paint again, no expensive preparation is necessary. On the other hand, if a paint is used that leaves the surface rough and scaly it not only looks bad but requires the use of a gasoline torch and a scraper to smooth it down before repainting. This preparatory work takes time and costs money which, of course, must be added to the original cost of the poor paint.

It never pays to use cheap paint. Even the best paint is a minor item in the whole cost of a painting job. Labor is the chief item. Thus it is false economy to spend money and time in putting on paint that probably will crack and scale off in ugly splotches, allowing the weather to attack the surface beneath.

The Dutch Boy and Carter brands of white-lead, used by skilled painters everywhere, are of the highest grade—strictly pure, finely ground, excellent in spreading and hiding properties. It will pay you to use either one of these brands when you are ready to paint.

Both these brands of strictly pure "lead-in-oil" are sold in two forms—as a heavy paste and as a soft paste. The latter has mixed in it at the factory a little more linseed oil than the heavy paste and therefore may be thinned to paint more quickly and easily. Both pastes contain nothing but pure white-lead and pure linseed oil.

Dutch Boy or Carter white-lead may be obtained in the following size steel packages at practically any store selling paint: 100 pound kegs, 50, 25 and 12½ pound pails, 1 and 5 pound tins. The soft paste containers are plainly marked "Soft Paste."

Formulas covering both soft paste and heavy paste are given in this handbook. In mixing paint according to these formulas, be sure to follow those applying to the *kind* of paste you are using.

The difference in oil content of heavy paste and soft paste accounts for the different amounts of paint produced in formulas where either grind may be used. The cost per gallon of paint, however, comes to about the same in either case.

How Much Paint? Easy Method. For those who do not want to trouble themselves with detailed measurements of a building and wish merely to know approximately the number of gallons of white-lead paint needed for the job, the following method of estimating will do:

Measure the distance around the building in feet and multiply by height in feet to the eaves or cornice. If there are gables, multiply their widest part in feet by half their height. Add these figures and divide the result by 600, which is about the number of square feet that one gallon of white-lead paint will properly cover. This gives you the number of gallons of paint

needed for the body of the building for one coat. Multiply the number of gallons by the number of coats to be put on and you have the amount of paint necessary for the job.

For the trim figure on using a gallon of paint for each 300 feet of usual-width trim.

How Much Paint? More Accurate Method. The exact area to be painted and the quantity of paint needed can be found by using the detailed rules below.

To figure the square feet in one end of the building, multiply the height from the foundation to the eaves or cornice by the width. In the diagram: 20 (height) × 24 (width) = 480 square feet.

Figure 1

Multiply by 2 to get number of square feet in both ends, 2 × 480 = 960 square feet.

To figure the square feet in one side, multiply height from foundation to eaves or cornice by length. In diagram: 20 (height) × 30 (length) = 600 square feet.

Multiply by 2 to get number of square feet in both sides, 2 × 600 = 1200 square feet.

To figure the square feet in the gable, multiply one-half its height by the distance between the eaves or cornice.

In diagram: 4 (½ of 8 feet, the height of gable) × 24 (distance between eaves) = 96 square feet.

If there is another gable of the same shape and size, multiply by 2 to get the number of square feet in both, 2 × 96 = 192 square feet.

When gables differ considerably in size they must be measured separately and the results added together to get the number of square feet in all of them.

Add the square feet in ends, sides and gables and the sum is the number of square feet of surface to be painted.

In diagram: 960 + 1200 + 192 = 2352 square feet to be painted.

If roof is to be painted, the paint probably will differ from that to be used on the body of the building and therefore the measurements should be kept separate.

Multiply length by distance from the comb to the gutter.

In diagram: 31 (length) × 15½ (distance from comb to gutter) = 480½ square feet.

Multiply by 2 to get the number of square feet in both sides of the roof, 2 × 480½ = 961 square feet.

The preceding directions can easily be followed where the building is regular in shape, like a box.

To lay down a set of rules for the detailed measurements of a building that is irregular in shape or outline would cause unnecessary confusion in many cases. If there is a large wing,

figure the wing as if it were a separate building but allow, of course, for painting only three sides.

Square Feet to a Gallon. In figuring the number of square feet a gallon of white-lead paint will cover, a great deal depends on the surface to be painted; that is, the kind of wood, how dry it is, degree of roughness, etc. Some woods are more porous than others and absorb more paint. Much depends, too, on the way the paint is brushed out. Some painters brush the paint out more and thus cover more surface.

The priming coat, mixed according to instructions given on page 11, will cover, on the average, 575 square feet to the gallon, one coat. Second and third coats on new work and first and second coats on old work will cover, on the average, 600 square feet to the gallon, each coat.

Tinting. The following mixing directions give white paint. If colored paint is wanted, simply thin the proper colors-in-oil to paint consistency with some of the oil and stir them into the soft paste before it is thinned or into the heavy paste after it is broken up. See "Colored Exterior Paint" on page 19 and "Formulas for Exterior Colors" on page 20.

How Many Coats. Three coats should always be put on a surface that has never been painted—a thin, penetrating priming coat, a hard body coat and a glossy, elastic finishing coat. (See formulas 1, 2 and 3.) Two coats are nearly always sufficient for old work unless the old paint is entirely useless. (See formulas 4 and 5.) Two coats on new work are false economy. A third coat costs only one-third more and makes the job last twice as long.

1, 2, 3—and it's paint!

(1) Give the soft paste a few quick stirs to mix in whatever free oil is on top of lead

(2) Pour the soft paste into a mixing tub or pail

(3) Thin to paint by stirring in linseed oil, turpentine and drier

Mixing Paint from Soft Paste White-Lead. It takes but a few minutes to make paint from soft paste white-lead. After stirring in whatever free oil may be on top of the lead when a keg is opened, all you do is pour the quantity of lead needed into a clean mixing tub and then mix in thoroughly the linseed oil, turpentine and drier called for by the formula.

Mixing Paint from Heavy Paste White-Lead. Paint is made from heavy paste white-lead in exactly the same way as when using soft paste except that it must first be "broken up". This is done by stirring in a little of the linseed oil at a time until a workable or fairly soft paste is obtained. For the stirring, use a strong, smooth paddle and work up the lead from the bottom of the mixing tub or pail as illustrated in Figure 2.

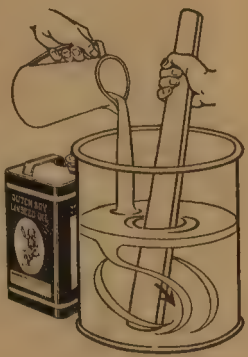


Figure 2

Straining the Paint. After the paint is completely mixed, strain it through cheesecloth folded double or a fine wire screen. This will remove lumps and any foreign material that may have gotten into the paint, as well as improve the paint's brushing qualities.

A good way to strain the paint is to pour it from the mixing tub or pail into the paint pots over which the strainer has been stretched. Clean, twenty-five pound white-lead pails make good paint pots, holding about three quarts of paint.

Raw and Boiled Linseed Oil. While paint thinned with raw linseed oil without drier is sometimes used where plenty of time may be allowed between coats, it is far better to add drier to the raw oil to hasten the drying of the paint before rain or snow strikes the fresh paint or before it can accumulate enough dust, dirt or insects to cause discoloration.

If pure raw linseed oil is not obtainable, pure boiled linseed oil may be used. Because some varieties of boiled linseed oil are nothing more than raw oil to which some drier has been added, it will pay the purchaser to insist on genuine pure boiled linseed oil and not accept something that is called a "compound" or any other term which plainly indicates substitution.

When heavy paste white-lead is thinned with boiled linseed oil no drier is necessary. When soft paste white-lead is thinned with boiled linseed oil a small amount of drier should be added.

Painting New Outside Wood. (*Note:* The following formulas are for white paint. For tinted paint see pages 19 to 22 inclusive.)

For the first or priming coat on new, unpainted outside wood the paint should be thin. Use the following:

Formula No. 1—Priming Coat
(*New Outside Wood*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	3¼ gals.	4 gals.
Pure turpentine	2 gals.	2 gals.
Pure drier	1 pint	1 pint
Approx. gals. of paint	8⅝ gals.	9 gals.
Coverage, one coat	4,950 sq. ft.	5,175 sq. ft.

The addition of a very small amount of lamp-black-in-oil to this formula results in a more even and perfect appearing job after the subsequent coats have been applied.

It is especially important that the priming coat be mixed and applied properly. It is the foundation for all succeeding coats of paint and unless it secures a firm and lasting anchorage the coats that follow will merely be lying on the surface and will cause endless trouble. More than ordinary care in the mixing and brushing on of the priming coat will provide good insurance against future trouble.

The painter may use his own judgment in using a larger or a smaller quantity of oil according to whether the wood is oil-absorbing such as redwood, white fir, sugar pine, western red cedar and hemlock, or less absorbent such as southern yellow pine, white spruce, Alaska cedar and cypress. The painter may find it advisable, in rare cases, to increase the quantity of turpentine for extremely sappy or resinous woods. Where this is done a corresponding decrease should be made in the specified amount of linseed oil.

Raw linseed oil with drier is better than boiled linseed oil for making paint to be used on outside wood, but boiled linseed oil may be used if

desired. No drier is needed with boiled oil and heavy paste white-lead except in cold or damp weather when a small quantity may be added.

Formula No. 2—Second Coat

(*New Outside Wood*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	¾ gal.	1½ gals.
Pure turpentine	1½ gals.	1½ gals.
Pure drier	1 pint	1 pint
Approx. gals. paint	5⅝ gals.	6 gals.
Coverage, one coat	3375 sq. ft.	3600 sq. ft.

Where light-colored paint is being mixed, it is good practice to tint the body coat approximately the shade of the final coat as it will afford better hiding power.

Formula No. 3—Third Coat

(*New Outside Wood*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	2¼ to 3¼ gals.	3 to 4 gals.
Pure turpentine	*1 pint	*1 pint
Pure drier	1 pint	1 pint
Approx. gals. paint	5¾ to 6¾ gals.	6⅛ to 7⅛ gals.
Coverage, one coat	3450 to 4050 sq. ft.	3675 to 4275 sq. ft.

Repainting Outside Wood. Two coats usually are enough on wood which has been painted before, the old paint serving as a priming coat.

Before repainting, scrape off all loose and

* In cold or humid weather, when paint heavy in oil dries only on the surface and remains soft underneath, two or three pints of turpentine may be used to advantage without injuring the gloss.

Although turpentine has been specified in Formulas 2, 3, 4 and 5 many painters are using Dutch Boy flatting oil instead with excellent results. They find it improves the paint's brushing and flowing qualities.

peeling paint and touch up the bare spots and defective places with paint mixed according to Formula No. 4 and then apply two coats as follows:

Formula No. 4—First Coat
(*Repainting Outside Wood*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	1¼ gals.	2 gals.
Pure turpentine	2 gals.	2 gals.
Pure drier	1 pint	1 pint
Approx. gals. paint	6⅝ gals.	7 gals.
Coverage, one coat	3975 sq. ft.	4200 sq. ft.

This coat will hide the old surface better if it is tinted to about the color of the final coat. If a white job is wanted the addition of a very small amount of lampblack-in-oil to this formula will result in a more even and perfect appearing job after the final coat has been applied.

Formula No. 5—Second Coat
(*Repainting Outside Wood*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	2¼ to 3¼ gals.	3 to 4 gals.
Pure turpentine	1 pint	1 pint
Pure drier	1 pint	1 pint
Approx. gals. paint	5¾ to 6¾ gals.	6⅛ to 7⅛ gals.
Coverage, one coat	3450 to 4050 sq. ft.	3675 to 4275 sq. ft.

Paint Ingredients in Tabular Form. For convenience and ready reference, the previous formulas are tabulated on the next page, following which will be found the same formulas reduced to the basis of one gallon of paint.

Although turpentine has been specified in Formulas 2, 3, 4 and 5 many painters are using Dutch Boy flatting oil instead with excellent results. They find it improves the paint's brushing and flowing qualities.

Formulas for Painting Outside Wood

TABLE A—New, Unpainted Outside Wood:

	Soft Paste White-Lead			*Heavy Paste White-Lead*		
	Priming Coat	**Second Coat**	**Third Coat**	**Priming Coat**	**Second Coat**	**Third Coat**
Dutch Boy or Carter white-lead	100 lbs.	100 lbs.	100 lbs.	100 lbs.	100 lbs.	100 lbs.
Pure raw linseed oil	3¼ gals.	¾ gal.	2¼ to 3¼ gals.	4 gals.	1½ gals.	3 to 4 gals.
Pure turpentine	2 gals.	1½ gals.	1 pint	2 gals.	1½ gals.	1 pint
Pure drier	1 pint	1 pint	1 pint	1 pint	1 pint	1 pint
Approximate gals. paint	8⅝ gals.	5⅝ gals.	5¾ to 6¾ gals.	9 gals.	6 gals.	6⅛ to 7⅛ gals.
Coverage, one coat	4950 sq. ft.	3375 sq. ft.	3450 to 4050 sq. ft.	5175 sq. ft.	3600 sq. ft.	3675 to 4275 sq. ft.

TABLE B—Repainting Outside Wood:

	Soft Paste White-Lead		*Heavy Paste White-Lead*	
	First Coat	**Second Coat**	**First Coat**	**Second Coat**
Dutch Boy or Carter white-lead	100 lbs.	100 lbs.	100 lbs.	100 lbs.
Pure raw linseed oil	1¼ gals.	2¼ to 3¼ gals.	2 gals.	3 to 4 gals.
Pure turpentine	2 gals.	1 pint	2 gals.	1 pint
Pure drier	1 pint	1 pint	1 pint	1 pint
Approximate gals. paint	6⅝ gals.	5¾ to 6¾ gals.	7 gals.	6⅛ to 7⅛ gals.
Coverage, one coat	3975 sq. ft.	3450 to 4050 sq. ft.	4200 sq. ft.	3675 to 4275 sq. ft.

Quantities of Materials Needed to Make One Gallon of Paint

TABLE C—New, Unpainted Outside Wood:

	Soft Paste White-Lead			*Heavy Paste White-Lead*		
	Priming Coat	Second Coat	Third Coat	Priming Coat	Second Coat	Third Coat
Dutch Boy or Carter white-lead	11½ lbs.	17½ lbs.	16 lbs.	11 lbs.	16½ lbs.	15 lbs.
Pure raw linseed oil	3 pints	1 pint	3½ pints	3½ pints	2 pints	2 quarts
Pure turpentine	2 pints	2 pints	2 oz.	1¾ pints	2 pints	2 oz.
Pure drier	2 oz.	2 oz.	2 oz.	2 oz.	2 oz.	2 oz.
Coverage, one coat	575 sq. ft.	600 sq. ft.	600 sq. ft.	575 sq. ft.	600 sq. ft.	600 sq. ft.

TABLE D—Repainting Outside Wood:

	Soft Paste White-Lead		*Heavy Paste White-Lead*	
	First Coat	Second Coat	First Coat	Second Coat
Dutch Boy or Carter white-lead	15 lbs.	16 lbs.	14 lbs.	15 lbs.
Pure raw linseed oil	1½ pints	3½ pints	2¼ pints	2 quarts
Pure turpentine	2½ pints	2 oz.	2¼ pints	2 oz.
Pure drier	2 oz.	2 oz.	2 oz.	2 oz.
Coverage, one coat	600 sq. ft.	600 sq. ft.	600 sq. ft.	600 sq. ft.

Painting Porch and Other Floors. The same precautions must be taken in preparing to paint a floor as in the preparation of any other surface. If the old paint is rough and scaly or thick and gummy, the floor should be cleaned down to the wood by planing, burning and scraping or by the use of a liquid paint remover. If the last method is used the surface must be brushed afterward with a coat of strong vinegar to destroy any trace of the alkali in the remover. Make sure that every part of the floor is firm and solid. There should be no spring to it when stepped on. After sandpapering and cleaning, the floor is ready for painting.

Priming Soft Wood Floors. If the floor is of white pine, poplar, hemlock, or other soft wood, use the following formula for the first coat:

Formula No. 6—Priming Coat

(*Soft Wood Floors*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	2¼ gals.	3 gals.
Pure turpentine	3 gals.	3 gals.
Pure drier	1 pint	1 pint
Approx. gals. paint	8⅝ gals.	9 gals.
Coverage, one coat	4950 sq. ft.	5175 sq. ft.

In applying use a brush well filled with paint and brush out well. One cause of sticky floor paint is flowing the paint on so thick that it does not dry thoroughly underneath, and then hurrying too much with the other coats.

After the priming coat is dry, all joints, cracks, nail-holes and other defects should be filled with a good white-lead putty. The putty should be firmly pressed into the joints or holes and smoothed over with a putty knife. When

the putty is entirely dry, remove the surplus with sandpaper.

Priming Hard Wood Floors. New hard wood floors—oak, maple, ash, yellow pine or walnut (all less absorbent than white pine or hemlock)—often are not painted but, if they are to be painted with white-lead, use less linseed oil and more turpentine than in the case of soft wood floors. A good first-coat formula follows:

Formula No. 7—Priming Coat
(*Hard Wood Floors*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	1¼ gals.	2 gals.
Pure turpentine	4 gals.	4 gals.
Pure drier	1 pint	1 pint
Approx. gals. of paint	8⅝ gals.	9 gals.
Coverage, one coat	5,175 sq. ft.	5,400 sq. ft.

The priming coat is the most important. A first-class foundation saves material and labor in repainting.

Body and Finishing Coats. For the body or second coat and the finishing or third coat on new floors, whether the wood is soft or hard, use the two formulas that follow. These same formulas should be followed in repainting wood floors with two coats.

Formula No. 8—Second Coat
(*Wood Floors*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	.....	½ gal.
Pure turpentine	2½ gals.	2½ gals.
Pure drier	1 pint	1 pint
Approx. gals. of paint	5⅞ gals.	6 gals.
Coverage, one coat	3,525 sq. ft.	3,600 sq. ft.

Formula No. 9—Third Coat
(*Wood Floors*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	.....	½ gal.
Pure turpentine	1 gal.	1 gal.
Pure drier	½ pint	½ pint
Floor varnish	1 gal.	1 gal.
Approx. gals. of paint	5¼ gals.	5½ gals.
Coverage, one coat	3,150 sq. ft.	3,300 sq. ft.

For porch floors a varnish should be used that will withstand outside exposure. Where dark colored paint is used, thin tinting colors with turpentine to paint consistency before adding to the paint.

Two things to keep in mind throughout the work are: first, vigorous brushing to spread out each coat to the utmost; second, allowing each coat at least four days to dry.

Underside of Porch Floors. Porch floors require protection against moisture from the damp space beneath the porch. This space is frequently left without sufficient ventilation. If the soil is damp the porch floor cannot help absorbing a great deal of moisture, which is almost certain to cause blistering and peeling of paint. To prevent trouble of this sort give the underside of the floor, also the tongue and groove edges of the boards, whether hard or soft wood, a coat of paint mixed as follows:

Formula No. 10
(*Underside Porch Floors*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	3¼ gals.	4 gals.
Pure turpentine	2 gals.	2 gals.
Pure drier	1 pint	1 pint
Approx. gals. of paint	8⅝ gals.	9 gals.
Coverage, one coat	4,950 sq. ft.	5,175 sq. ft.

Colored Exterior Paint. All formulas given so far in this book make white paint. Where colored paint is wanted it can be made simply by adding tinting colors of the proper shade in the right amounts. The tinting colors are known as "colors-in-oil" and can be bought in tubes or in cans wherever you buy your white-lead.

While there is hardly a limit to the number of tints and shades that may be produced by adding colors to white-lead paint, there are some colors to be avoided due to their tendency to fade on exposure to sunlight. Formulas for making a number of desirable colors are printed on pages 20 to 23. Any of these colors can be varied indefinitely by increasing or decreasing the amount of tinting materials specified.

Most of the color formulas given call for the use of two or more tinting materials but it should be remembered that simpler colors may be made with but one coloring material. Lamp-black, added in varying amounts to white-lead paint, produces a range of pleasing grays; chrome yellow will produce creams, yellows and buffs; chrome green will make shades of green; and venetian red provides a variety of pinks. See page 124.

Since there is no standard of tone or tinting strength for colors-in-oil of various manufacture, all formulas for producing colored paint must necessarily be approximate. Chrome yellows and ochres, for example, are particularly subject to variation in both strength and tone.

All formulas for colored paint in this book are based on the use of John T. Lewis & Bros. Company's colors-in-oil (Dutch Boy brand). These or other high-grade colors should be used if you want to follow closely the formulas given

here. Cheap colors have little tinting strength and a larger quantity must be used.

As explained under "Tinting" on page 7, the tinting colors should be added to the batch of paint before the final thinning. Never pour in all at once the entire quantity of color specified. Add the color gradually and note its effect as it is being stirred into the paint. Stop when the right shade is reached even if you have used less than the formula calls for. On the other hand, you will have to provide more color if the specified amount fails to bring the batch to the shade wanted. Should you accidentally mix too much color in the paint it will be necessary to add more white-lead, properly thinned.

When a formula calls for large amounts of tinting color, it is necessary to provide an extra quantity of thinners to avoid changing the consistency of the paint. This extra color should be thinned before mixing in. Dump the color into a pail and bring it to paint consistency by stirring in linseed oil and turpentine (equal quantities of each).

Formulas for Exterior Colors. The following formulas, with the exception of Numbers 65, 638 and 641, are based on using 100 pounds of Dutch Boy or Carter white-lead. For smaller or larger amounts of white-lead simply decrease or increase the quantity of coloring material accordingly. Read section entitled "Tinting One Gallon of Paint" on page 123.

Gray Green—No. 5—(Fairly Permanent)

8 ounces medium chrome yellow
6 ounces medium chrome green
4 ounces lampblack

Colonial Yellow—No. 10—(Fairly Permanent)

2 pounds french ochre
1 pound medium chrome yellow

Light Gray—No. 11—(Permanent)
2 ounces lampblack

Gray—No. 21—(Permanent)
8 ounces lampblack

Buff—No. 58—(Fairly Permanent)
6 pounds french ochre
1 ounce venetian red
1 ounce lampblack

Light Tan—No. 59—(Fairly Permanent)
8 pounds french ochre
3 ounces lampblack
2 ounces venetian red

Cream—No. 60—(Fairly Permanent)
1 pound 9 ounces raw sienna

Yellow Buff—No. 61—(Permanent)
12 pounds french ochre
5 ounces venetian red
1 ounce lampblack

Reddish Buff—No. 62—(Permanent)
5 pounds french ochre
½ pound burnt sienna

Light Green—No. 63—(Fairly Permanent)
6 ounces medium chrome green
2 ounces medium chrome yellow

Coral—No. 64—(Permanent)
4 pounds burnt sienna
1¼ pounds french ochre

Taupe—No. 627—(Fairly Permanent)
2 pounds french ochre
8 ounces prussian blue
1½ pounds venetian red

Yellow Green—No. 742—(Fairly Permanent)

10 ounces medium chrome green
8 ounces medium chrome yellow
¼ ounce lampblack

Fawn—No. 758—(Permanent)

1¼ pounds venetian red
3 ounces chrome yellow
2 ounces lampblack

Green Blue—No. 794—(Not Permanent in Sunlight)

6 pounds medium chrome green
4 pounds chinese blue

Dark Colors. These colors are used chiefly for sash and blinds and require no white-lead. Each formula is complete in itself, the thinners being shown with each color.

Green—No. 65—(Permanent)

100 pounds chromium oxide
2½ gallons pure raw linseed oil
½ gallon pure turpentine
1 quart pure drier

This will make about 9 gallons of paint which will cover approximately 5,400 square feet, one coat.

Brown—No. 638—(Permanent)

100 pounds french ochre
28 pounds 14 ounces venetian red
5 pounds 6 ounces lampblack
7 gallons pure raw linseed oil
1 gallon pure turpentine
3 pints pure drier

This will make about 16½ gallons of paint which will cover approximately 9,900 square feet, one coat.

Red—No. 641—(Permanent)

100 pounds venetian red
47 pounds 14 ounces indian red
6 gallons pure raw linseed oil
3 quarts pure turpentine
3 pints pure drier

This will make about 14½ gallons of paint which will cover approximately 8,700 square feet, one coat.

Painting Wood Shingles on Side of House. Paint for wood shingles used as siding should be prepared as follows:

For priming coat use Formula No. 1, page 11.

For the second coat use:

Formula No. 11—Second Coat

(*Wood Shingles as Siding*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	1¼ gals.	2 gals.
Pure turpentine	1 gal.	1 gal.
Pure drier	1 pint	1 pint
Approx. gals. of paint	5⅝ gals.	6 gals.
Coverage, one coat	3,375 sq. ft.	3,600 sq. ft.

For the third coat use Formula No. 3, page 12.

Staining Wood Shingles and Rough Siding. A small amount of tinting material, sufficient to stain the shingles or siding to the desired color, should be added to a mixture of the following oils:

⅓ Dutch Boy flatting oil
⅔ pure boiled linseed oil

In order to obtain the desired color it is necessary only to add the proper tinting colors-in-oil

to the above oil mixture. The color formulas which follow give the amounts of colors-in-oil required for each gallon of the oil mixture to produce some of the more common colors. These are but a few of the many colors obtainable.

Gray

12½ pounds white-lead
½ ounce lampblack

Deep Red Brown

3 pounds dark indian red

Bright Red

4 pounds venetian red

Green

1½ pounds chromium oxide
or
3 pounds medium chrome green

Blue

4½ pounds white-lead
1½ pounds prussian blue
8 ounces lampblack

Note: While creosote oil sometimes is used for staining shingles and rough siding it is not needed to produce a good, penetrating stain and is very likely to cause trouble if the surface is painted in the future. Creosote stains beneath a coat of paint are apt to "bleed" through and cause discoloration and spoil an otherwise good job.

Helpful Hints in Mixing and Applying Paint.

1. Be sure to mix plenty of paint, both for body and trim. It is better to have some left than to run short, especially if you are using a colored paint. There will be no waste, for the left-

overs are useful for painting cellar stairs, roof valleys or gutters and various odd jobs where the color of the paint makes no material difference. The body and trim color left-overs may be used for such work and a little lampblack added to the batch to produce a neutral shade.

2. Be sure to put the tinting colors in the paint before the final thinning. The colors should first be thinned to paint consistency and added to the mix after the white-lead has been broken up in the case of heavy paste white-lead, or before the final thinning if soft paste white-lead is used. To put in the colors in their paste form or in dry form is to invite streaking when the paint is brushed out.

3. It is a good idea to strain your paint before using it. Stretch a double thickness of cheesecloth or a fine wire screen over a tub or pail and pour your freshly mixed paint through it. This will remove small lumps of color, skins and other foreign matter that may have fallen into the mixing tub. Straining the paint also adds to its spreading qualities.

4. Benzine and kerosene should never be used as a substitute for turpentine. Mineral oil and other non-drying oils have no place in paint for outside woodwork. Avoid them.

5. Use only the best liquid drier, that made by some well-known manufacturer.

6. Dark-colored driers slightly alter shades, so, in tinting your paint, make allowance for this darkening in the pot.

7. Knots and sappy streaks in new wood should be shellacked, before the priming coat is applied, with pure orange shellac, brushed out very thin. When the lumber is extremely knotty, less oil and more turpentine may be used

than the formula calls for, as too much oil on the knots causes later coats to draw and check.

8. Do no outside house-painting in extremely cold, frosty or damp weather. Painting may be done in winter if care is taken to choose periods when the temperature is favorable (not lower than 50° F.) and surfaces are dry.

9. Moisture is paint's worst enemy. Wood in new buildings almost always contains a good deal of moisture. Let the wood dry out thoroughly before painting. Never put more than the priming coat on the outside of a house until the plaster inside is thoroughly "bone dry." Oil and water will not mix and paint applied over a damp surface will eventually peel.

10. Be equally careful when repainting. Wait for dry weather and examine the surface carefully for moisture before painting.

11. The surface to be painted should be smoothed down before the new paint is applied. If the old paint was white-lead and linseed oil only a dusting off will be needed. If hard, brittle paint was used it may be necessary to scrape the surface or perhaps remove the old paint with a gasoline or acetylene torch and scraper. Do not paint over old lumpy or scaling paint. Be sure to brush off all the dust and dirt that has collected on the drip-caps over windows and doors, as well as on the window headers and sills. If not removed, the dust and dirt will mix with the fresh paint and cause streaking.

12. Use plenty of "elbow grease." Brush the paint well into the pores of the wood and do not allow it merely to flow from the brush. It is doubly important to brush the priming coat in closely.

13. For putty use only pure white-lead (either soft paste or heavy paste) thickened to putty consistency with dry whiting. With this putty fill all nail-holes, cracks, knot-holes, dents and other defects in the surface. These places should be filled tightly after the priming coat is dry. Putty containing petroleum and marble dust often mars an otherwise good painting job by making yellow nail-holes and cracks.

14. Preparations of cheap shellac, rosin, etc., are likely to cause knots to turn yellow.

15. It is well to mix the paint 24 hours before being used but, if it is to be allowed to stand longer than this, do not put in the drier or all the turpentine until just before application. Paint should not be allowed to stand for long periods unless it is kept in fully sealed, air-tight containers; otherwise it will become fatty.

16. Two thin coats of paint are better than one thick coat.

17. In the case of linseed oil substitutes it is sometimes claimed that they are "just as good." Some of these substitutes are worthless. You should not, under any circumstances, allow yourself to be persuaded to use any vehicle (oil) for outside painting in place of pure linseed oil, unless you have proved it to be satisfactory. In general, for one substitute that has merit there are many that are merely adulterants.

18. Allow plenty of time between coats for the paint to dry. Outside work should be allowed to dry three days before the next coat is applied and inside work at least 48 hours.

19. Be sure the previous coat is hard as well as dry, as painting over a "soft" surface is likely to cause checking or alligatoring.

20. Use only the best paint always. A poor paint may look well for a time but appearances do not keep out the weather. Wind, sun and rain will test the true value of any paint more surely than will the eye.

Department of Technical Paint Service and Decoration. If you have a special problem of a technical nature that is not covered in this book address your inquiry to us and our Department of Technical Paint Service and Decoration will give it prompt and expert attention.

If you wish color scheme suggestions for the exterior of a house, please give us the information requested on page 130, so that we can more satisfactorily help you.

CHAPTER II

Interior Wall Painting and Decorating

The decoration of interiors presents a problem quite different from the painting of exteriors. Paint used inside is not exposed to the weather and consequently is mixed differently from paint intended for outside use. A large part of interior surfaces is plaster, which is treated differently from wood. Glossy paint is usually used on exteriors while the decoration of interiors calls for a variety of finishes of which flat and semi-gloss effects are most popular, and a range of colors which includes those more delicate and elusive tints not ordinarily selected for exterior use.

The points to consider in the treatment of interior surfaces are beauty, cleanliness and economy. Beauty involves color and style of finish. Cleanliness depends upon washability. Economy has to do with cost and years of wear. These three results are best reached by the use of paint made of pure white-lead.

Soft-Tone Effects. Most inside painting nowadays is done in lustreless or so-called "flat" effects. Until a few years ago, these flat effects were always obtained with white-lead by thinning it with turpentine instead of linseed oil. Then special flatting oils for use with white-lead were developed. These flatting oils are taking the place of turpentine for interior painting. The handsome, durable, washable, soft-toned finish which flatting oil gives is resulting in a marked

increase in the popularity of the painted wall, especially for homes.

Dutch Boy Flatting Oil. One of the most successful flatting oils on the market today is Dutch Boy flatting oil. It mixes with white-lead to produce an excellent flat finish, binds the pigment particles firmly together and insures a paint film that will not chip off.

Dutch Boy flatting oil is designed especially for use with Dutch Boy or Carter white-lead. So used, it produces a soft, glossless finish that has a depth of tone and a richness all its own.

Paint made from white-lead and Dutch Boy flatting oil not only makes a beautiful finish but also one that is sanitary and enduring as well. The hard, tile-like film it forms stands frequent washing with warm water, mild soap and a soft cloth or a sponge and can thus be kept absolutely clean and sanitary. The durability of the paint is not affected in any way by washing and there is no unsightly streaking as often occurs when a less stable paint is washed.

Dutch Boy flatting oil with white-lead also makes a superior undercoating for enamels and an ideal ground for tiffany blends, graining, etc.

Every can of Dutch Boy flatting oil bears the famous Dutch Boy trademark as a guaranty of excellence. It is sold in quart, gallon and five-gallon cans. Complete directions for use are printed on each container.

Area of Room Surfaces. In estimating the number of square feet in a room to be painted it is the practice to consider the walls, ceiling and woodwork as separate units. It is necessary to do this as paint for plaster is mixed differently from that for wood, and the ceiling and side walls are not usually painted the same color.

To find the area of wall surface to be painted, measure the distance around the room and multiply by the distance between the baseboard and the picture molding or ceiling. Subtract from this figure the area occupied by the doors and windows. Divide the result by 600*, which is about the number of square feet of surface one gallon of paint will cover. The answer is the number of gallons of paint needed for one coat.

To find the area of the ceiling, multiply the width by the length. To this figure, add the area of the four strips of wall surface above the picture molding. Divide the total area thus obtained by 600* which gives the number of gallons of paint needed for one coat.

If walls or ceiling are irregular in shape, divide into rectangles, figuring separately the area of each rectangle. The sum of the areas gives the total amount of surface to be painted and dividing by 600* gives the number of gallons of paint needed for one coat on smooth plaster.

Preparing the Surface. It is always advisable to allow plaster at least six months to dry out thoroughly or "set" before attempting to paint it. Fresh plaster contains free alkali which has a tendency to keep paint from drying properly and to cause colors to bleach out.

A good many people do not care to let their walls go unpainted for six months. In such cases, painters oftentimes artificially "age" the new plaster by treating the surface with a solution made by dissolving two pounds of zinc sulphate in one gallon of water. After this solution is applied, sufficient time is allowed for the plaster to dry before priming.

* In the case of the priming coat, figure 800 square feet per gallon if Dutch Boy wall primer is used, and figure 700 square feet for the second and third coats if flatting oil is used.

Before applying any paint, be sure that the plaster or old paint is clean and smooth. Go over the wall very lightly with fine sandpaper or a wide putty knife to remove grit and any loose plaster or paint, taking care not to scratch the surface.

Fill all cracks and holes with patching plaster. The proper filling of cracks is essential to a good-appearing and permanent paint job on plaster. The plaster, to be filled properly, should be first cut out in the shape of an inverted V or triangle:

Figure 3

A—Wrong method of cutting "V." B—Correct method, the "V" being inverted so that its point is on the surface

Figure 4

How the cut-out crack should be filled to obtain the best possible results. See method for applying filler

The edges of the opened crack should be soaked with water to aid the patching plaster in forming a bond with the old wall. Fill the crack

to within a quarter inch of the surface and allow the patching plaster to set partially before leveling up to the wall surface.

Walls that have been calcimined should be washed off with sponge and warm water before applying the priming coat.

In general it is inadvisable to paint over wall paper. Paint when applied over old paper adds considerable weight and this may be sufficient to pull the paper loose. Walls that have been papered should as a rule have all the paper removed and the walls washed with warm water to remove all traces of paste. Occasionally it will be necessary or advisable to apply paint directly to wallpaper and it may produce a good job if the old paper contains no colors that will "bleed" through and is tight to the wall.

Dutch Boy Wall Primer. For the first coat on new interior plaster to be painted with white-lead, Dutch Boy wall primer is strongly recommended. This is an actual paint (not simply a thin primer) made with a carefully prepared varnish type vehicle. It effectively stops suction, seals fire cracks, provides an ideal foundation for succeeding paint coats and at the same time gives good hiding.

Dutch Boy wall primer—the "sealer and paint coat combined"—is sold in half gallon and gallon cans, as well as five-gallon kits.

Mixing the Paint. To mix white-lead paint for interior work, follow the mixing directions given on page 9, in the chapter on exterior wood painting. The only difference is that interior painting calls for flatting oil or turpentine in most formulas instead of linseed oil.

Because of its lower linseed-oil content, heavy paste white-lead is preferable to the soft paste

for making flat paint. However, much the same results can be had with the soft paste if some of the oil is removed or drawn from it. To do this, add from two to three gallons of turpentine to every hundred pounds of lead, stirring it in thoroughly, and allow the mixture to stand until the white-lead has settled. Then draw off the clear liquid from the top. The flatness of finish depends upon the amount of turpentine used and the length of time allowed for the settling. At least forty-eight hours should elapse before the oil is drawn.

Number of Coats. Three coats are recommended for interior plaster which has never before been painted—a priming coat, a second or body coat, and a third or finishing coat. If the plaster has been painted before with an oil paint, two coats are sufficient, and the priming coat may be omitted. The old paint, if in good condition, serves as a priming coat. If only one coat of paint is to be used on surfaces that are in reasonably good condition it will be necessary to wash the walls to remove all traces of dirt and grease. This is especially true of kitchen, bathroom and laundry walls and ceilings.

If a two-coat job on unpainted plaster is desired, use the priming and finishing coats given in the formulas which follow, omitting the second coat. To make two coats hide better, tint the first coat to approximately the same color as the second coat.

Two coats cannot be expected to hide as well as three nor to give as fine a finish. In fact, it is not considered the best practice to use only two coats on new work. Experience has shown that three coats are necessary for entirely satisfactory results. It is best therefore to play safe always by using three coats.

Formula 12—Priming Coat
(*Interior Plaster*)

(a) Use either Dutch Boy wall primer, which will cover about 800 square feet per gallon, or the following:

(b) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Pure boiled linseed oil	7 gals.*
Pure turpentine	1 gal.
Approx. gals. of paint	11 gals.
Coverage, one coat	6,325 sq. ft.

Formula No. 13—Second Coat
(*Interior Plaster*)

Use either of the following formulas for the second coat, adding one to two quarts of Dutch Boy wall primer to each gallon of the paint if desired.

Dutch Boy wall primer, mixed as explained with flat paint, is also desirable for the first coat in repainting plaster. In fact, where fire-cracks are extremely bad in old painted walls, it is recommended that straight Dutch Boy wall primer be applied as the first coat in repainting.

(a) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Dutch Boy flatting oil	2 to 2½ gals.
Approx. gals. of paint	5 to 5½ gals.
Coverage, one coat	3,500 to 3,850 sq. ft.

or

* If pure boiled linseed oil is not available use 7 gals. pure raw linseed oil and 3 pts. pure drier.

(b) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Pure raw linseed oil	½ gal.
Pure turpentine	2 gals.
Pure drier	1 pint
Approx. gals. of paint	5½ gals.
Coverage, one coat	3,300 sq. ft.

For the third coat in painting new plaster or for the second coat in repainting, use any of the following formulas, selecting the one that gives the finish wanted.

Formula No. 14—Third Coat, Flat Finish
(*Interior Plaster*)

(a) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Dutch Boy flatting oil	2 to 2½ gals.
Approx. gals. of paint	5 to 5½ gals.
Coverage, one coat	3,500 to 3,850 sq. ft.

or

(b) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Pure turpentine	2 gals.
Floor varnish	1 pint
Pure drier	½ pint
Approx. gals. of paint	5 gals.
Coverage, one coat	3,000 sq. ft.

Formula No. 15—Third Coat, Eggshell Gloss Finish
(*Interior Plaster*)

(a) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Dutch Boy flatting oil	1½ to 2 gals.
Floor varnish	¾ gal.
Approx gals. of paint	5¼ to 5¾ gals.
Coverage, one coat	3,675 to 4,025 sq. ft.

or

(b) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Pure turpentine	1½ to 2 gals.
Floor varnish	¾ gal.
Pure drier	½ pint
Approx. gals. of paint	5¼ to 5¾ gals.
Coverage, one coat	3,150 to 3,450 sq. ft.

Formula No. 16—Third Coat, Oil Gloss Finish

(*Interior Plaster*)

Note: The following formula should be used only as a base for dark colors, as light-colored paint containing considerable raw linseed oil will yellow badly when used on interiors. Where a light-colored gloss finish is required, follow Formula No. 17.

(a) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Dutch Boy flatting oil	¼ gal.
Pure raw linseed oil	3 gals.
Pure drier	1 pint
Approx. gals. of paint	6¼ gals.
Coverage, one coat	3,750 sq. ft.

or

(b) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Pure raw linseed oil	3 to 3½ gals.
Pure turpentine	1 pint
Pure drier	1 pint
Approx. gals. of paint	6 to 6½ gals.
Coverage, one coat	3,600 to 3,900 sq. ft.

Formula No. 17—Third Coat, Enamel Finish

(*Interior Plaster*)

Materials		Amounts
Dutch Boy or Carter	heavy paste white-lead (mixed and drawn as explained below)	3 lbs.
Floor varnish		1 gal.
Approx. gals. of paint		1 gal.
Coverage, one coat		500 sq. ft.

To mix and draw white-lead as required for enamel gloss finish, mix the heavy paste white-lead with turpentine, 3 pounds to 1 gill, and let the mixture stand overnight or longer to settle. Then draw off the thinners from the top and add the varnish.

Colored Interior Paint. The preceding formulas covering the painting of interior plaster surfaces produce white paint. If colored paint is desired, the white paint can be readily tinted by the addition of proper tinting colors before all the thinners are added, as explained on page 7 under "Tinting." See also the section on "Colored Exterior Paint" on page 19, which gives some valuable pointers on the selection and use of colors-in-oil.

Formulas for Interior Colors. The following formulas are based on the use of 100 pounds of Dutch Boy or Carter white-lead. For smaller or larger amounts of white-lead simply decrease or increase the quantity of coloring material accordingly. See also "Tinting One Gallon of Paint" on page 123.

Light Pink—No. 36

4 ounces venetian red
2 ounces medium chrome yellow

Light Yellow—No. 38

8 ounces medium chrome yellow

Light Yellow Green—No. 39

8 ounces medium chrome yellow
1½ ounces medium chrome green

Gray—No. 45

9 ounces french ochre
2 ounces lampblack
1 ounce venetian red

Tan—No. 48

6 pounds french ochre
1½ ounces lampblack
3 ounces venetian red

Green Blue—No. 52

1 ounce medium chrome green
½ ounce chinese blue

Light Gray—No. 54

1 ounce lampblack

Light Coral—No. 57

1 pound venetian red
2 ounces medium chrome yellow

Light Blue—No. 664

2 ounces medium chrome green
⅝ ounce lampblack
¼ ounce chinese blue

Buff—No. 731

5 pounds 9 ounces french ochre
⅜ ounce lampblack

Reddish Buff—No. 822

11 ounces medium chrome yellow
1½ ounces venetian red

Blue Green—No. 854

5 ounces medium chrome green
3 ounces medium chrome yellow
1¼ ounces lampblack

Applying Flat Paint. The beauty of a wall painted with flat paint depends to a large degree on how the paint is applied, especially the final coat. Flat paint dries more quickly than gloss paint and brush-marks and joints or laps will show if the work is not done properly.

Start at one end of the wall at the top, painting a section or "stretch" about three feet wide and work down (not across) the wall. Special care should be taken to keep the edge of the freshly painted surface wet until the entire section of the wall being painted is completed. This is necessary in order to avoid lapping, which occurs if the edge is allowed to set or dry.

When the bottom of the wall is reached, start another stretch about the same width, joining it to the first one and working down the wall as before. Repeat the process until the whole wall is painted, making sure to work fast enough to keep one section from drying before another is joined to it.

Paint made from Dutch Boy or Carter white-lead and Dutch Boy flatting oil sets slowly and you will have no difficulty in obtaining a good job, if you will take the one precaution of keeping the edges wet. The paint should not be flowed on like varnish but should be laid off and cross-brushed so that the brush-marks will more

readily flow together. This is one of the chief virtues of a Dutch Boy flatting oil paint—it may be brushed out in much the same way as outside lead-and-oil paint.

Stippling. Paint for interior walls is often stippled. This eliminates all possibility of brush-marks and makes a more uniform finish without adding materially to the cost of the job. A stippled effect is produced simply by striking the paint, just before it has set, with a wall stippling brush, producing a uniform texture.

Paint to be stippled is mixed thicker than usual and may be varied in this respect according to the degree of stippling desired. One hundred pounds of Dutch Boy or Carter heavy paste white-lead thinned with 2 gallons of Dutch Boy flatting oil (or turpentine) makes a heavy-bodied paint suitable for stippling. The stippling brush brings the little points of paint out as the brush leaves the surface and these points tend to flow back more completely with thin paint and less completely with thick paint.

Special Wall Finishes. Many people prefer walls decorated in one color and without doubt in many cases good taste dictates this treatment. Others prefer blended, mottled or figured wall effects and these are frequently suitable. Some owners think they must give up the sanitary and other advantages of paint when anything but a plain unfigured finish is desired. This is a great mistake. Quite a number of very beautiful and highly decorative blended, mottled and figured wall effects are obtainable with paint made of white-lead and flatting oil. Moreover, with these effects are still retained the advantages of washableness, sanitary qualities and rich texture.

Plain walls are the thing where simplicity is indicated, where care must be taken not to

detract from pictures or in large formal rooms where a certain severity is desired. But there are many cases where the use of special finishes is not only in excellent taste but preferable. To meet this demand, there are described below and on the following pages some of the blended, mottled and figured wall effects obtainable with paint.

Crumpled Roll Finish. To produce this finish, select two harmonious colors differing enough in tone to offer a pleasing contrast.

The ground or second coat, using Formula No. 13, page 35, should be tinted to match one of the colors selected and should be applied in the regular way and allowed to dry. Then the finishing coat is brushed on, a workable section at a time, and "rolled" as described below while still wet. Prepare the finishing coat according to Formula No. 14, page 36, and tint it to match the second color chosen.

The "rolling" or mottling is done with a double sheet of newspaper or other absorbent paper crumpled tightly into an elongated wad seven to eight inches in length. Newly printed newspapers should not be used because the printing ink may come off the paper and spoil the appearance of the wall.

Figure 5

Starting at the top left-hand corner of the freshly painted surface and rolling diagonally downward, turn the roll of crumpled paper over and over with the fingers, pressing it firmly against the wall to keep it from slipping. (See Figure 5.)

Continue the rolling to

the bottom of the wall and repeat for the next strip, permitting the end of the roll of paper to just overlap the edge of the previous strip.

New rolls should be substituted when the paper becomes so saturated with paint as to leave an indistinct impression.

After a wall has been rolled it should be examined. All blank or missed spaces should be patted with the crumpled paper, and all blurs touched up and rerolled while they are still wet.

Care should be taken to apply no larger section of the finishing coat than can be conveniently rolled before it sets up.

The principal problem involved in a treatment of this type lies in the selection of the two colors to be used. Such colors as ivory for a ground and tan for a finishing coat combine nicely, as do salmon pink and pale smoke gray, and buff and light gray.

If considerable difference exists between the colors selected for use, an effect may be expected that is sharper and more clearly defined than in the case of two colors which are more or less similar. Just as a dark finish may be employed over a light ground, in the reverse way a light finish may be employed over a dark ground.

It must, however, be kept in mind that as only about one-third of the ground coat shows through, the finishing coat is the one which determines the dominant color of the decorative effect.

In new work the second coat should be tinted to the desired ground color, while the third coat should be colored in a sufficiently different manner to show a proper degree of contrast when removed by rolling in the manner previously described. On repaint work, however, the side wall color already in place, if in good condition and free of grease and dirt, may be employed

as the ground, and in such an instance the single finishing coat to be applied over it should be tinted with proper reference to the ground so that the desired degree of difference will be apparent.

Experiment with this finish will show that the size of the figure is determined by the closeness with which the paper selected for use is crumpled. Paper crumpled loosely will produce a more or less widely spaced effect, while closely crumpled paper will produce an exceptionally uniform treatment.

Where a three-tone finish is desired, another coat of flat paint, tinted to a third color, should be applied over the two-tone effect and then rolled as previously described.

The crumpled roll finish should not be attempted on rough-finished surfaces since the high points of the plaster will prevent the paper from reaching the paint in the depressed portions, thus leaving an indistinct pattern.

Satin Finish. The satin or, as it is sometimes called, the silk finish, offers quite a unique form of side wall treatment, particularly for use in panels.

Contrary to the preceding effect, the finishing coat, tinted to the desired color, should be prepared using Formula No. 15, page 36, to produce an eggshell gloss instead of a flat. When brushed out and allowed to dry, a stencil color thinned with Dutch Boy flatting oil to heavy consistency but with enough flatting oil so the color will dry flat, should be applied through the openings of a stencil previously selected. The stencil design should as closely as possible approximate the general character of pattern commonly associated with satin and silk fabrics.

The flat color applied through this stencil

should be tinted to harmonize properly with the eggshell gloss ground color.

After the stencil has been removed and the work is dry, it will be noted that a changeable effect of exceptional interest has been secured.

To the observer standing immediately in front of a panel decorated in this manner, it would appear that a plain stencil treatment in delicate colors had been employed. When viewed, however, from such an angle as to receive the light directly reflected from the finish, it will be observed that the ground color, which when previously noted appeared dark and the stencil light, now appears in just the reverse manner.

This change is, of course, due to the ability of the eggshell gloss ground to reflect more perfectly in a direct manner the light which it receives than does the flat stencil. In consequence, the former will appear quite light and the latter dark.

To obtain the best results, the eggshell gloss coat should always be tinted slightly darker and stronger than the light flat stencil color.

Stencil Finish. Whether a decorative note of color is required over an entire side wall or simply in small spots here and there in the panels, the stencil offers a ready means of supplying it. It is also invaluable as a quick method of securing a frieze or panel border where moldings are missing.

Although a stencil can be applied with ease, there are two points which should not be overlooked in connection with its application. First, care should be taken to avoid the use of a too thin paint as a stencil color. The paint should be of heavy paste consistency, thinned slightly with Dutch Boy flatting oil, and should be applied with a brush carrying very little paint. Second, care should be taken actually to compare the stencil color directly against the

ground over which it is to be applied, since those colors in the immediate vicinity of the stencil will influence and seem to change its color characteristic.

Tiffany Finish. This finish, which was originated by the famous Tiffany Studios of New York City, is sometimes called a blended or glazed finish. To prepare a surface for the tiffany finish it should first be brought up to the ground color selected by adding the required amount of tinting materials to Formula No. 14, page 36. This coat should be allowed to dry thoroughly. Over this should be brushed a coat of straight Dutch Boy flatting oil, taking care to cover no larger area than can be conveniently worked—about twenty-five square feet.

While the flatting oil is still wet, the glazing colors should be applied here and there. See Fig. 6. Some of the colors-in-oil used for tinting paint are better adapted to glazing work than others. Raw and burnt sienna, raw and burnt umber, rose lake, cobalt and chinese blues and lampblack are most frequently used as glazing colors. The last two mentioned should be used very sparingly since they exhibit a tendency to "strike in" and unless care is taken a spotty effect may result.

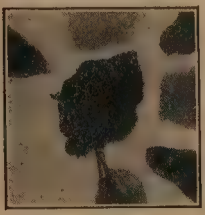


Figure 6

The colors should be blended one into another with a wad of cheesecloth, using either a circular or a figure 8 motion. High lights should then be wiped out here and there to permit the ground color to show through and the work finished by tamping with a ball of cheesecloth.

The method as outlined above applies of course to smooth finish plaster, but equally interesting effects on this same order may be obtained on rough finish plaster, provided the glazing colors when applied are blended into one another by tamping with a stippling brush.

Shaded Tiffany Finish. The shaded tiffany differs from the regular tiffany in that the coloring, instead of being the same all over, gradually gets darker down the wall, being very light at the ceiling line. This interesting decorative effect is often employed as a treatment for alcoves, side wall panels or for vaulted ceilings to give the appearance of increased height.

An appropriate flat ground color, prepared according to Formula No. 14, page 36, is selected, applied and allowed to dry. Next a coat of straight Dutch Boy flatting oil is brushed on to cover as much of the surface as can be easily worked at one time.

While the flatting oil is still wet, the glazing colors should be applied near the top of the wall in small spots, considerably removed from one another. See Fig. 8. Farther down the wall, the spots should be made larger and, as the baseboard is approached, should be more closely spaced.

Figure 7

As explained under "Tiffany Finish," the colors should be blended into one another with a ball of cheesecloth with a faint suggestion of wiped high lights, through which the ground color is barely visible. See Fig. 7.

The work should then be finished by tamping

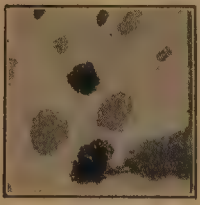


Figure 8

with a ball of clean cheesecloth starting at the top of the wall.

The plain shaded effect, which is produced by using but one glazing color, is rendered in the same way except that the color gradation should be as even as possible with no attempt made to suggest high lights by wiping through to the ground color beneath. The ground should be permitted to show only at the top of the wall.

Polychrome Finish. The polychrome or multicolored finish is interesting for use where spots of color are required to accentuate certain moldings composed of individual units such as the egg and dart, bead, floral motifs, etc., that may be present in the interior. It is, as a general rule, most satisfactory for use as an added touch of decoration where a plain one-tone treatment has been employed on side wall and ceiling.

This finish is best obtained by applying to the various units composing the molding several different colors which have been extended into tints by the addition of white-lead. These tints should be quite light and nearly equal in value. Tinting parts of the molding in certain of these light colors offers a particularly effective treatment for large rooms, since it lends a colorful touch to an interior that might otherwise appear cold and uninteresting.

Should the effect appear too bright it can be toned down, when the paint is dry, by the application of a thin glaze coat as described below, under "Antique Finish."

Two-Tone Glaze or Antique Finish. This

method of finishing the plain one-tone wall, or some more elaborate decorative treatment, is indispensable where the colors used need to be softened and a rich depth of tone added to the work.

The effect is obtained by first preparing a thin semi-transparent glaze composed of Dutch Boy flatting oil to which tinting material has been added to produce the depth of tone required. Apply this glaze over the dry finishing coat and then, while the glaze is still wet, wipe lightly over it with a ball of clean cheesecloth. This operation will remove a certain amount of the glaze, permitting enough to remain on the surface to give an antique effect.

Wiped Stencil Finish. A coat of straight Dutch Boy flatting oil is applied over a dry, flat, one-tone ground coat prepared according to Formula No. 14, page 36, and tinted to the desired color. On this wet surface the glazing colors are spotted unevenly. The colors are then blended one into another until a tiffany finish is produced.

While the tiffany is still wet the stencil selected for use should be placed firmly against the surface and the glaze appearing through the openings of the stencil should be removed by wiping with a ball of cheesecloth. This allows the ground color to show through. See Fig. 9.

The ease with which an error can be corrected by simply glazing over the spot and rewiping through the stencil can be seen.

There are many interesting possibilities with this finish. When the stencil is placed against the wall, the glaze may be wiped out clean to show

Figure 9

a clear-cut pattern or it may be wiped lightly to show a faint and somewhat indistinct outline. In the latter case, care should be taken to wipe clean the edge of the area appearing through the stencil openings. This operation permits a small amount of the glazing color to remain in the center of each figure, to harmonize with the remainder of the glazing color used on the side wall.

Another interesting treatment is secured by wiping clean the areas appearing through the stencil openings and then applying, in the regular stencil manner, some of the clear glazing colors used in originally spotting the wall for the glazed effect. This will naturally produce a stencil in complete harmony with the remainder of the side wall since the same colors are used.

The wiped stencil is, of course, appropriate for use only on plaster having a smooth finish. Obvious difficulties would be encountered in endeavoring to wipe clear the surface of a rough-finished ground.

Striping. Where a simple method of treatment is required to lend a distinctive air to an interior which has been painted in a plain one-tone effect, striping may be used with good results. Striping is simply a narrow banding line of some harmonizing color of greater strength than that applied on the side wall.

For general use this line should perhaps be three-quarters of an inch in width outlining all window frames, door frames, and running parallel with any other interior trim.

The striping line should be applied direct to the side wall a few inches out from the wood trim, the distance depending largely on the width of the stripe which is, in turn, determined by the size of the room. The usual distance is about three to four inches for a three-quarter inch stripe.

Striping is also employed where imitation stone effects are required as a method of marking their outline.

Paneled Effects with Paint. Large interior surfaces are sometimes found that would appear far more interesting if paneled than if left in large unbroken areas.

Striping or stenciling with paint to produce panels offers a simple solution of the problem. In laying off the side wall in panels, considerable discretion should be exercised in order that the panels may be interesting in shape. As a general rule, panels should be taller than they are wide in order to lend an atmosphere of height to the interior. When panels have been outlined and the decorative panel treatment carried out, a solid striping line of color or a stencil border should be applied to frame properly each panel. The width of the border is dependent on the panel size.

Sponge Mottle Finish. In the sponge mottle finish the colors chosen for the ground and mottling coats should differ sufficiently to show the desired degree of contrast in the finished effect.

A flat ground, properly tinted, should first be applied and allowed to dry. Prepare this ground according to Formula No. 14, page 36; use this formula also for the mottling coat.

Now cut a coarse fibre sponge in half in order to make a flat surface, soaking one of the halves in water to soften the fibres and then wringing it out carefully.

To do the mottling, lightly press the flat side of the sponge into some of the mottling coat paint, previously spread on a board, and then tamp the wall with it here and there. See Fig. 10. Go over the entire surface in this way, making no attempt to follow a set pattern. Much of

the charm of the sponge mottle finish is lost if the sponge markings are placed in straight lines and at fixed intervals.

More than one mottling color may, of course, be employed. Use a separate sponge for each color.

A beautiful and changeable effect may be secured by using an eggshell gloss (Formula No. 15, page 36) over a flat ground coat. By tinting both the ground and the mottling coats to the same color an effect of tracery may be obtained due to changes in the angle of reflected light.

Figure 10

Combination Effects. All the special wall finishes described on the foregoing pages are subject to interesting variations and many may be used with excellent results in combinations one with another. A little experimenting will disclose innumerable possibilities. For example, the two-tone crumpled roll finish serves as an excellent background over which to apply a sponge mottle or stencil, giving an elaborate and highly decorative treatment.

White-Lead and Oil Plastic Paint. The trend is away from excessively rough surfaces as wall finishes, but modified or low-relief textures are gaining in popularity. This latter type of textural effect can be produced readily with a white-lead and oil plastic paint. Such a paint is made with materials that the painter always has in his shop, is relatively low in cost and gives a durable finish that can be kept clean by washing.

For a wall effect of modified texture, apply a coat of paint mixed as follows:

Formula No. 18—Plastic Paint

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Dry whiting	44 lbs.	22 lbs.
Dutch Boy flatting oil	1¾ to 2 gals.	1½ gals.
Pure drier	¼ pint	¼ pint
Approx. gals. of paint	7¼ gals.	5¼ gals.
Coverage, one coat	1,160 sq. ft.	840 sq. ft.

If soft paste white-lead is used, thin the whiting with the flatting oil and mix thoroughly with the white-lead, adding the drier and such tinting colors as may be required.

If heavy paste white-lead is used, add half the flatting oil to the white-lead and use the remainder to thin the whiting. Then mix the two batches together thoroughly, adding the drier. Tinting colors may also be put in if desired.

A gallon of white-lead and oil plastic paint will cover from 100 to 220 square feet, the difference in spreading rate depending upon the thickness of film required to produce the desired texture. The maximum coverage of 220 square feet to a gallon represents a spreading rate beyond which the plastic paint would be too thin for producing even the most modified relief effect. The minimum coverage of 100 square feet to the gallon represents a spreading rate which, if further reduced, will not give overnight drying, due to the heaviness of the texture. An average coverage of 160 square feet per gallon should be estimated in figuring costs on plastic lead paint.

The resulting paint, although heavy, will brush out with comparative ease, after which it may be manipulated or textured with a brush, whiskbroom, sponge or any other means.

A plastic paint prepared as described may be tinted while it is being mixed, or may have colors-in-oil worked into it while it is still wet on the wall. Such a paint sets up overnight and can easily be glazed to lend additional color to the surface, if such a procedure is desired.

White-lead and oil plastic paint may be applied to any surface that is in condition to receive paint—plaster, wall board, fabric wall coverings, brick, concrete, wood and glass. In the case of fabric wall coverings, all loose or slack fabric should be pasted or nailed in place with nails driven through tin disks. One coat of plastic paint, which is sufficient for all ordinary texturing, will completely hide small defects and nail heads.

When the plastic paint is to be applied to new plaster walls, it is recommended that the walls first receive a priming coat of Dutch Boy wall primer, described on page 33 of this booklet. If the walls have been previously painted with an oil paint, and are in satisfactory condition for repainting, the plastic finish may be applied direct.

Use an ordinary four-inch wall brush and coat only a workable section at a time. If too large an area is covered before the texturing is begun, the paint may be difficult to manipulate.

Plastic Textures. Paint prepared according to Formula No. 18 may, when applied, be textured to produce interesting and highly decorative

effects. Some of the simpler finishes are illustrated on pages 57 to 65 and are obtained as follows:

Basket Weave. Drag the wide edge of a whisk broom down over the paint about six inches, until a square is formed. Then place the broom immediately below, and at the left edge of the square, and draw it horizontally across the wall until the right edge of the motif above is reached. Repeat the first process below the horizontal markings. When this pattern is laid over an entire wall the effect resembles a basket weave and makes an interesting modern design for small rooms or for the tea room, shop or studio.

Fan Swirl. Starting at the top of the wall, place a whisk broom against the wet plastic paint and give the wrist slightly more than a half turn to the right to produce a circular effect. Repeat the process, making another similar figure at the right of the first one. The whisk broom is held in horizontal position. The bristles at the right act as the axis upon which the broom is turned. After several of these fan-shaped swirls have been executed, a second series should be worked below the first and just close enough to enable the sweep of the whisk broom to carry the pattern up over the lower part of the first line.

The Fan Swirl texture is particularly striking if a glaze is added to accentuate the high points.

Grass Cloth. The beauty of the Grass Cloth effect depends as much on the colors used as on the texture. A coat of tinted plastic paint is first brushed on in the usual way. While this coat is still wet, spots of plastic paint of various colors are applied here and there. A whisk-broom is then drawn vertically across the surface so as to blend the colors.

Another way to produce the Grass Cloth finish is as follows: Put on a coat of tinted plastic paint. Then texture this with a whisk broom in the manner described and, when dry, glaze it with colors thinned with flatting oil.

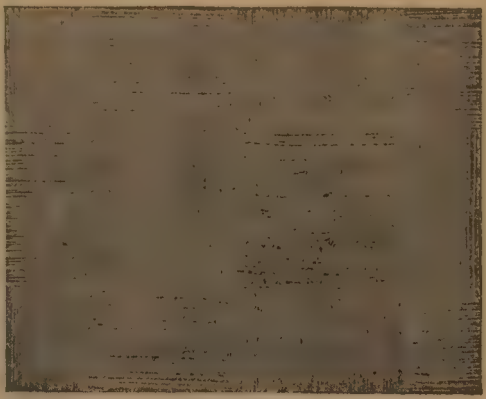
Weave Moderne. This effect is produced simply by drawing a whisk broom through the plastic paint at various angles. The broom sweeps should be fairly long and overlap so as to form an interesting series of interlacing diagonal lines. Particularly effective results may be had with this effect by glazing with gold, silver, bronze or some other metal color.

Water Wave. Beginning at the top of the wall, draw a whisk broom or paint brush slowly downward, at the same time moving it from left to right to produce a series of wavy lines.

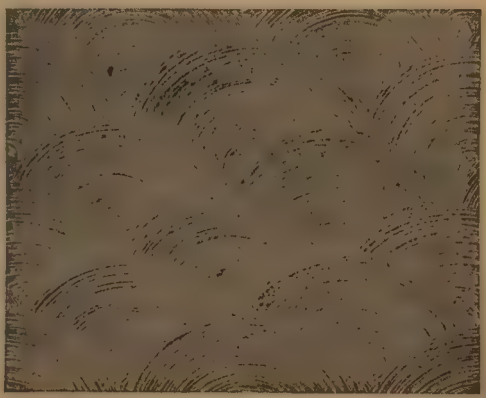
Vein Relief. To produce this effect, simply strike the wet plastic paint sharply all over with the flat side of a four inch wall brush.

Swirl Overlay. There are two ways of forming this interesting figure. One is to place the flat side of a coarse fibre sponge against the plastic paint, pulling the sponge sharply away after a quarter twist of the wrist. The second method is to use, in place of the sponge, a flat block of wood about six inches square and an inch thick. With either tool the markings should be made so that the swirls overlap.

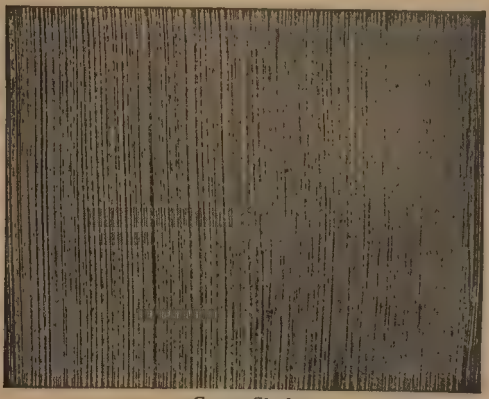
Gothic Scroll. A serving spoon is the tool used in producing this pattern. The bowl of the spoon is pressed against the wet plastic and moved spiral-fashion. The outer sweep of the spiral should be six or eight inches in diameter, the spiral becoming smaller as it approaches the central point from which the spoon is lifted. A



Basket Weave

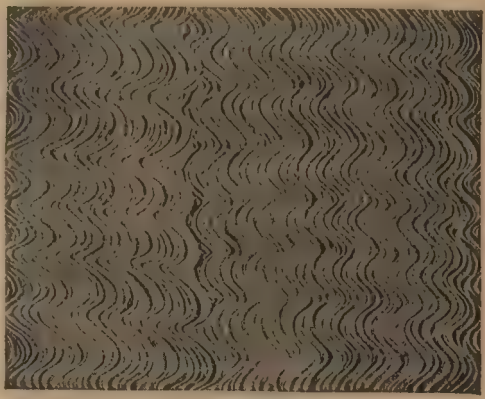


Fan Swirl



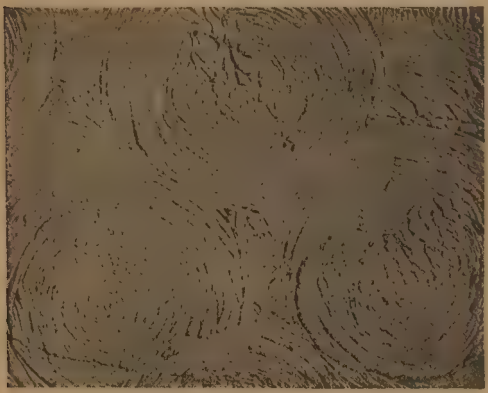
Grass Cloth

Weave Moderne



Water Wave

Vein Relief

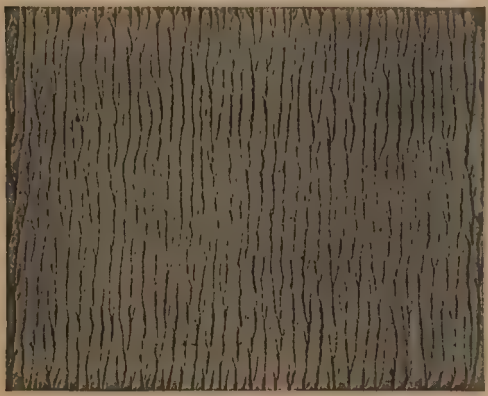


Swirl Overlay

Gothic Scroll

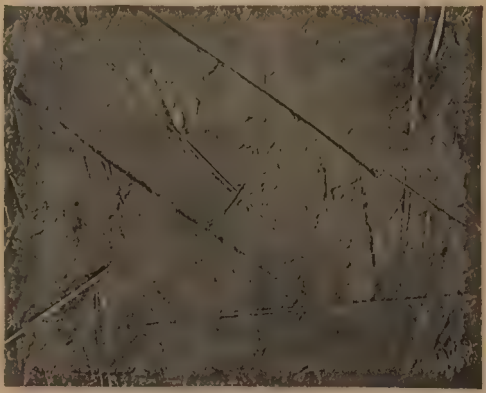
Waving Reed

Thatched Reed



Willow Twig

Fretted Texture



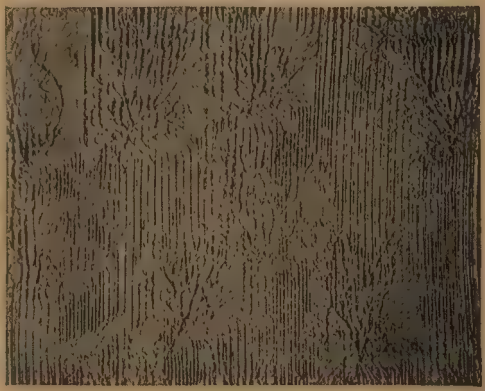
Palette Blend

Travertine

Heather Effect

Caenstone

Fern Effect



Tapestry Effect

second spiral, overlapping the first, is then added and the process continued to form an all-over treatment.

Waving Reed. First drag a graining comb horizontally across the plastic paint. Then, using the rounded end of the handle of a paint brush or putty knife, make upward curving lines a foot to a foot and a half long. All the lines should have the same general curvature and taper off at the point to resemble reeds bending slightly before the wind. The "reeds" should interlace to provide a uniform all-over pattern. The use of a glaze will bring out the texture strikingly.

Thatched Reed. This effect is obtained by drawing the rounded end of the handle of a brush or putty knife through the plastic paint to establish vertical and diagonal markings, closely interlaced. These, in the final finish, should suggest the matted effect of closely woven thatch. The texture is emphasized if a glaze is applied.

Willow Twig. This design is made by placing a rolling pin against the plastic paint and simply rolling the pin upward.

Fretted Texture. Just tamping the wet plastic paint uniformly with a coarse fibre sponge produces the Fretted texture.

Palette Blend. The Palette blend is produced by brushing on a coat of plastic paint in the regular way and then applying spots of plastic paint of another color while the all-over coat is still wet. This done, the two colors are blended together by placing a straightedge against the surface at various places and giving the tool a quarter twist. The straightedge may be celluloid, wood or metal. Care should be exercised to hold it very lightly against the sur-

face so that too much plastic paint is not piled up. The two colors used should give a good contrast. About three times as much paint will be needed for the undercoat as for the spots.

Travertine. First apply a cream-colored plastic paint uniformly over the surface. Then press a sponge lightly here and there, evenly distributing the sponge markings and spacing them from four to eight inches apart. The markings should measure about three inches in width and be longer horizontally than vertically. Such markings can readily be made by grasping the sponge tightly. A straightedge is finally drawn lightly across the textured plastic paint from left to right so as to smooth down all points raised in stippling.

After the textured paint has set, it is marked off into blocks. This is accomplished by cutting parallel lines spaced about a quarter of an inch apart and then lifting out the plastic paint between the lines.

It is customary to use a thin glazing coat in the case of the Travertine effect. The liquid glaze may be made with flatting oil, burnt umber and burnt sienna.

Heather Effect. Against the plastic paint, place the bowl of a spoon (or an electric light bulb), rolling it slightly from right to left as it progresses down the wall. Continue on in this way until an all-over pattern is secured.

Caenstone. This texture is secured simply by stippling cream-colored plastic paint in a uniform manner with a stippling brush and then glazing. The blocking off is done in the same way as in the case of the Travertine effect.

Fern Effect. To make each "fern" motif, press the end of a palette knife (one approxi-

mately an inch wide) into the plastic paint and move the blade rapidly back and forth, progressing upward in a graceful curve, left or right, and tapering off to a point. This not only gives the cross lines in the figure but piles up the plastic paint at the sides in such a way as to produce an outline resembling a leaf. Each motif should range in length from one to two feet and its widest part should not be more than five inches. The "stem" is produced by drawing the knife point down the center of the motif. Note particularly (page 65) how the various fern leaves overlap. The more dense the grouping of the "ferns," the better will be the effect. A glaze is generally used with the Fern effect.

Tapestry Effect. This effect is obtained by dragging a graining comb through the plastic paint to give a series of vertical lines and then striking the paint lightly here and there with a sponge or a wad of paper. Glazing with gold, silver or bronze gives a rich, beautiful finish.

Painting Fabric Coverings. To overcome defects in plaster walls or to anticipate others which it is feared may develop, plaster walls are sometimes covered with muslin or a specially prepared fabric of some kind which is then painted. No difficulties are encountered in painting such fabric coverings. The painting is done in the regular way just as if plaster were being painted, and the finished job is practically indistinguishable from ordinary painted plaster. If the fabric has been previously treated with a size, no priming coat is necessary.

Painting Wall Board. Composition wall board, which is used on many interiors to take the place of plaster, may be painted with satisfactory results. Such surfaces may be treated like plaster walls and the painting should be done in ac-

cordance with the recommendations given for painting plaster.

Washing Painted Walls. Walls painted with white-lead can be cleaned, without harm, provided the following procedure is employed.

A workable portion of the wall should be sponged with a good white soap solution, the work progressing from the baseboard toward the ceiling. This section should then be rinsed with clear water and the adjoining section cleaned in the same manner. The white soap solution should effectively remove ordinary dust and dirt which accumulates on most walls.

In certain public buildings, the walls receive severe mechanical injury and become badly soiled, and it is sometimes necessary to use a solution stronger than that containing only white soap. Some of the washing powders, which do not contain an excessive amount of alkaline material, prove very effective in such cases. Cleaning powders that contain a certain amount of abrasive material will naturally wear down the paint film regardless of how hard it may be and their use should be avoided whenever possible. A little experimenting will enable one to determine just how strong a soap solution is necessary to produce the desired results without injuring the paint film by either chemical or mechanical action.

Department of Technical Paint Service and Decoration. If you have some special problem of a technical nature that is not covered in this book address your inquiry to us and our Department of Technical Paint Service and Decoration will give it prompt attention.

If you wish color scheme suggestions for the interior of a house or other building, please give us the information requested on page 131.

CHAPTER III

Interior Wood Finishing

The same general principles that apply to the painting of exterior wood may be laid down for the painting of interior wood. The paint is applied in the same way and the same number of coats is used, but the formulas for mixing differ due to the fact that paint on interior wood is not exposed to the sun and rain and the finish may be a full gloss, a dead flat, or any intermediate finish.

Before mixing the paint, refer to mixing directions on page 9. While these are for outside paint, they apply equally as well to interior paint except that the thinners are different. Also see "Helpful Hints in Mixing and Applying Paint" on page 24.

Estimating Quantity of Paint. Treat all doors as if they were plain rectangular shapes, multiplying height by width to arrive at the area. Divide the result by 700 square feet, if formulas designated as (a) are followed, and by 600 if formulas (b) are followed. The answer is the number of gallons of paint needed for one coat. For other woodwork, such as window frames, baseboard, molding, etc., simply figure about three quarts of paint for every hundred running feet.

Painting New Inside Wood. On interior wood never before painted, use three coats—a priming coat, a second coat and a third or finishing coat. The proper formulas follow. These are for white paint. If the paint is to be colored, tint it as explained on page 7. The amounts of tinting material needed for various interior colors will be found on pages 38 to 40.

Heavy paste white-lead is recommended here

and not the soft paste, as the extra oil in the latter may cause premature yellowing on inside white paint.

Formula No. 19—Priming Coat

(*New Inside Wood*)

(a) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Dutch Boy flatting oil	3 gals.
Pure raw linseed oil	3 gals.
Pure drier	1 pint
Approx. gals. of paint	9 gals.
Coverage, one coat	5,400 sq. ft.

or

(b) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Pure raw linseed oil	3 gals.
Pure turpentine	3 gals.
Pure drier	1½ to 2 pints
Approx. gals. of paint	9 gals.
Coverage, one coat	5,400 sq. ft.

As on outside wood, the painter may exercise his discretion in the use of the thinners prescribed—thus on white pine, poplar, and basswood, which more readily absorb oil, increase the quantity of linseed oil. On yellow pine, cypress, spruce and hemlock, use less linseed oil and more flatting oil or turpentine and drier.

Formula No. 20—Second Coat

(*New Inside Wood*)

(a) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Dutch Boy flatting oil	2 to 2½ gals.
Approx. gals. of paint	5 to 5½ gals.
Coverage, one coat	3,500 to 3,850 sq. ft.

or

(b) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Pure raw linseed oil	½ gal.
Pure turpentine	2 gals.
Pure drier	1 pint
Approx. gals. of paint	5½ gals.
Coverage, one coat	3,300 sq. ft.

Formula No. 21—Third Coat, Flat Finish

(*New Inside Wood*)

(a) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Dutch Boy flatting oil	2 to 2½ gals.
Approx. gals. of paint	5 to 5½ gals.
Coverage, one coat	3,500 to 3,850 sq. ft.

or

(b) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Pure turpentine	2 gals.
Floor varnish	1 pint
Pure drier	½ pint
Approx. gals. of paint	5 gals.
Coverage, one coat	3,000 sq. ft.

Formula No. 22—Third Coat, Eggshell Gloss Finish

(*New Inside Wood*)

(a) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lea	100 lbs.
Dutch Boy flatting oil	1½ to 2 gals.
Floor varnish	¾ gal.
Approx. gals. of paint	5¼ to 5¾ gals.
Coverage, one coat	3,675 to 4,025 sq. ft.

or

(b) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Pure turpentine	1½ to 2 gals.
Floor varnish	¾ gal.
Pure drier	½ pint
Approx. gals. of paint	5¼ to 5¾ gals.
Coverage, one coat	3,150 to 3,450 sq. ft.

Formula No. 23—Third Coat, Oil Gloss Finish

(*New Inside Wood*)

Note: The following formula should be used as a base for dark colors only, as light-colored paint containing considerable raw linseed oil will yellow badly when used on interiors. Where a light-colored gloss finish is required, follow Formula No. 17, page 38.

(a) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Dutch Boy flatting oil	¼ gal.
Pure raw linseed oil	3 gals.
Pure drier	1 pint
Approx. gals. of paint	6¼ gals.
Coverage, one coat	3,750 sq. ft.

or

(b) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Pure raw linseed oil	3 to 3½ gals.
Pure turpentine	1 pint
Pure drier	1 pint
Approx. gals. of paint	6 to 6½ gals.
Coverage, one coat	3,600 to 3,900 sq. ft.

Enamel Finish. When a prepared enamel is to be used as the finishing coat, the priming and second coats should be mixed according to Formulas No. 19 and No. 20. Then follow with a sufficient number of coats of Formula No. 20

to give a satisfactory body for the enamel finish, adding to last coat of Formula No. 20 one quart of enamel to the gallon of paint.

Repainting Inside Wood. Two coats are enough in repainting interior wood. Simply apply one coat mixed according to Formula No. 20 and, when this is dry, put on a finishing coat based on Formula No. 21, 22 or 23.

For an enamel finish in repainting, proceed as directed under "Enamel Finish" simply omitting the priming coat.

Special Interior Wood Finish. Sometimes an especially fine finish, unnecessary for ordinary conditions, is called for. Where this is the case the following steps should be taken:

1. The woodwork should be smooth, dry and cleaned of all dust before painting. Apply first a coat of white shellac, 3 lb. cut, thinned with good quality denatured alcohol. Let the shellac harden twenty-four hours and then rub down with No. 0 sandpaper. Apply a coat of paint mixed according to the following formula. (To insure whiteness, mix the lead with turpentine, 100 pounds to 2 gallons, and let it stand overnight or longer to settle. Then draw off the thinners from the top and bring to brushing consistency by adding flatting oil or turpentine and floor varnish.)

Formula No. 24—First Coat Over Shellac
(*Special Interior Wood Finish*)

(a) Materials	Amounts
Dutch Boy or Carter heavy paste white-lead (drawing the oil as explained in preceding paragraph)	100 lbs.
Dutch Boy flatting oil	2 to 2½ gals.
Approx. gals. of paint	5 to 5½ gals.
Coverage, one coat	3,500 to 3,850 sq. ft.

or

(b) Materials		Amounts
Dutch Boy or Carter	heavy paste white-lead (drawing the oil as explained in preceding paragraph)	100 lbs.
Pure turpentine		1½ gals.
Floor varnish		¼ gal.
Pure drier		¼ pint
Approx. gals. of paint		4½ gals.
Coverage, one coat		2,700 sq. ft.

2. Old woodwork should be rubbed smooth with sandpaper until all gloss has disappeared. Then apply one coat of paint mixed according to Formula No. 24.

When the first coat on either new or old work is dry and hard, putty all defects such as knot-holes, dents, cracks, etc., with putty made by stiffening heavy paste white-lead to putty consistency with dry whiting.

3. From this point new and old work should be treated alike. When the first coat is dry, rub it down with No. 0 sandpaper. Repeat coats of Formula No. 24 as many times as are necessary to bring the surface to clear white with no dark places showing through.

4. Next apply one coat of high-grade white enamel. After this is dry, rub it down with pumice and water. Then apply a second coat of the same enamel and finish with rotten stone and sweet oil. Polish finally with a chamois.

This completes the full-gloss finish.

For a silk finish, rub down the last coat with fine pumice and water.

To obtain an ivory effect, tint the last coat with just enough raw sienna to turn it off the white, before applying the enamel. The enamel coats must be tinted in like manner.

Antique or Old Ivory Finish for Interior Wood Trim. This effect is produced by brushing over an ivory colored ground a thin glaze composed of:

1 gal. Dutch Boy flatting oil
12 oz. burnt umber

Before this glaze has set up, it should be removed from the raised parts of the trim by wiping with a clean rag. The small amount of glaze remaining in the depressed portions gives the antique effect required.

Staining Interior Wood. In staining new interior wood a coat of liquid composed of equal parts of raw linseed oil and turpentine, particularly if the wood is soft, should first be applied to make an even foundation for the stain. If this precaution is not taken, the stain will strike in here and there, appearing dark in some spots and light in others. When this coat is dry, the stain should be applied over it. After the stain has been on the surface for 5 or 10 minutes wipe off the surplus with a dry rag or waste.

Stain Formulas

(*Natural Wood*)

(a) 2 quarts Dutch Boy flatting oil
2 quarts pure raw linseed oil
1 quart pure drier

—or—

(b) 2 quarts pure raw linseed oil
2 quarts pure turpentine
1 quart pure drier

To this may be added colors-in-oil, in the approximate proportions outlined below, to obtain the required color.

Cherry

2 lbs. burnt sienna
1 lb. raw sienna

If the burnt sienna has more of a brown than a fiery red tone, omit the raw sienna but use three pounds of burnt sienna instead of two.

Mahogany

2 lbs. van dyke brown
1 lb. rose lake

Vary the proportions of the above colors to get the depth desired for this stain.

Light Oak

2 lbs. raw sienna
½ lb. raw umber

If the raw sienna is inferior in staining power, omit the raw umber and use three pounds raw sienna.

Dark Oak

2 lbs. raw sienna
¾ lb. burnt umber
Small amount burnt sienna

Walnut

2 lbs. van dyke brown
or
1½ lbs. burnt sienna
½ lb. dropblack

If the color of black walnut is desired, add more dropblack.

Graining. A ground should first be prepared in the usual way, applying three coats of paint prepared according to Formulas Nos. 19, 20 and 21, pages 71 and 72. If the work has previously been painted, the priming coat (Formula No. 19) may be omitted. The last two coats should be tinted, according to the wood to be imitated, by adding colors-in-oil in approximately the amounts indicated on the following page.

Ground Colors

Cherry

6½ lbs. venetian red

Mahogany

10 lbs. french ochre
16 lbs. venetian red

Light Oak

1 lb. french ochre
¼ lb. medium chrome yellow

Dark Oak

7½ oz. medium chrome yellow
1¾ oz. venetian red

Walnut

6 lbs. french ochre
1 oz. venetian red
1 oz. lampblack

For graining colors the tinting materials given under "Staining," for the particular wood to be imitated, should be thinned to brushing consistency with

3 parts pure turpentine
2 parts pure raw linseed oil
1 part pure drier

This paint should be applied over the dry ground and, while still wet, should be dragged, combed, or otherwise figured, in imitation of natural wood graining.

Painting Interior Floors. There are two kinds of floors that require painting—new floors laid with soft wood such as hemlock or white pine; old floors that have become worn, scratched, stained or otherwise marred. New floors of hard wood, such as oak, ash, maple or yellow pine may be painted, if desired, but waxing or varnishing or staining makes a handsomer finish.

Success with newly painted floors depends chiefly upon the choice of right materials and knowing how to use them. In fact, the only important particular in which the film of floor paint needs to differ from that on a window frame, door or the side of a house is the finish. The priming coat must anchor firmly into the wood, it must dry thoroughly and the outer coat must become hard before the floor is used.

Note: For the procedure in preparing the surface and painting interior floors, both hard and soft wood, follow the directions given on page 16.

Other Finishes for Hard Wood Floors. For hard wood floors that are not to be painted, four kinds of treatment may be named—oiling, shellacking, varnishing and waxing. The processes overlap more or less and vary according to the kind of wood. The treatment selected should also depend upon the way the floor is to be used. A few fundamentals may be stated.

Open-grained hard woods, such as oak, birch, ash or walnut, should be treated first with a good silex paste filler. Close-grained hard woods, like maple or cherry, require no filler. Yellow pine, owing to the pitch it is likely to contain, should first have a thin coat of shellac to prevent the pitch from blistering later coats.

Good silex paste fillers may be purchased ready to apply. Or an excellent one may be made by mixing the finest silex, or silica, with equal parts of pure linseed oil, pure turpentine and best japan drier, so as to form a medium paste. Reduce this paste to a fairly thin mixture with turpentine only, allowing the filler to stand for a time. In some cases it is possible to add the colors-in-oil, with which the wood is to be

stained, directly to the filler. This is good practice. Brush across the grain of the wood with a stiff, stubby brush that will work the paste well into the pores. One coat makes a fair job, but two coats make a better one, filling up the checks which the first coat did not fill.

After the filler has dried for about an hour, rub briskly across the grain of the wood with coarse burlap or excelsior to remove surplus filler left on the surface,

The purpose in using fillers is to fill the pores of open-grained wood, and to prevent darkening by the excessive absorption of varnish or other material used for the finish.

Oil Finish. Oiling, no doubt, is the most durable finish for a floor, though it requires frequent going over. One effect of oil is to darken considerably the natural color of the wood. For a floor oil use three parts of pure boiled linseed oil to one part of turpentine. When boiled oil cannot be obtained take four parts raw oil, one part turpentine and one part drier. Stir frequently while using; apply with a strong, stiff brush; rub well into the wood. Clean off all surplus oil not taken up by the wood. An oiled floor should be wiped frequently with an oiled cloth. Oily rags are liable to take fire spontaneously and should be burned.

Shellac Finish. This treatment gives a fairly lasting finish if the floor is not to have very rough usage. Three or four coats of shellac, thinned down with good quality denatured alcohol, are recommended for either soft or hard wood floors. Sandpaper between coats. Rub down with oil and pumice stone on the last coat if a dull finish is desired.

Varnishing Floors. When a floor is to be varnished it is poor policy to try to save money

on the varnish. Use only the highest grade floor varnish. Assuming that the wood has been suitably prepared as suggested above, and then sandpapered smooth, two or three coats of varnish should be applied, allowing ample time between coats for drying. If the film is thin it wears away too soon. A white shellac varnish which dries quickly is sometimes used.

Wax Finish. Get from any paint store a floor wax of good quality and spread the wax on the floor in a thin coat. If the wax is too hard to spread, it may be reduced easily by mixing with turpentine. A good method of application is to place a small quantity of wax between two or three thicknesses of cheesecloth, forming a sort of bag. The wax will work through the meshes of the cloth as it passes over the floor, thus insuring a thin, even coat. Allow 15 minutes for drying, then rub to a polish with a clean, soft cloth, a weighted brush, or similar device. In an hour or two a second coat of wax should be applied the same as the first. To keep such a floor in prime condition requires frequent brushing or rubbing with a soft cloth, and a thin coat of wax about once a month. Waxing gives a beautiful finish, scratches on it are easily repaired and it tends least of all treatments to darken the wood or hide the grain. Waxed floors are smooth and likely to be slippery. Aside from this objection and the constant care they require wax is recommended as the handsomest of all floor finishes.

Refinishing Old Floors. The proper time to take care of a floor is when the first bare spot appears. Then all that is necessary is to scrub thoroughly, apply a coat of floor varnish or paint to such places as show wear and, when dry, go over the entire floor.

To bring a badly worn floor back to its orig-

inal state of perfection requires considerable work and ingenuity. There are two good methods by which this can be done. One is to remove the old finish and then scrape the wood with a carpenter's steel floor scraper. This scraping and subsequent sandpapering brings the wood back to its original condition and all that is then necessary is to fill, stain and varnish or paint as a new floor. This is a somewhat expensive proceeding, however, and many people prefer to do the work in the regular way.

The first operation is stripping off the old varnish. For this use a good grade of liquid paint or varnish remover and apply to a section of the floor, covering only as much surface as can be conveniently handled before the remover dries. Ten or twelve boards, the full width of the room, will be enough to handle comfortably. The finish will start to get soft almost as soon as the remover is applied, but let it remain until it is soft all through, when most of it can be removed with the blade of a putty knife or painter's scraper. Have an old paint pot handy into which to put these scrapings. Next dip a handful of coarse steel wool in the remover and scrub up the remainder of the finish. If the floor is kept constantly wet with the remover this process will clean it very quickly. Beware of all cheap soda or chloride preparations sold in place of liquid removers. They may remove the old material but they also discolor the wood badly and sometimes even produce checks in the lumber.

As soon as a stretch of floor is done, and while still wet with remover, it must be scrubbed. No ordinary washing will do the work. A good, stiff scrubbing is required. Use a strong soap solution and a handful of coarse steel wool. Put about a quarter pound of Gold Dust washing

powder in a pail and add two gallons of hot water, or make an equally strong solution of sal soda. This must be strong enough to remove all the paint and varnish still remaining after the use of the remover. Dip the steel wool in the cleaner and scrub vigorously, using plenty of water. Follow up immediately with clean rinsing water and a sponge. Change the rinsing water frequently because it soon becomes dirty. Wipe the surface as dry as possible with the sponge and then start the next stretch.

When the entire floor has been done in this manner it will be stripped to the bare wood, yet show dark spots here and there where the old finish was worn through and the floor discolored. The bleaching of these spots is a very simple operation. It is done with oxalic acid which can be procured from a paint dealer or druggist. To a gallon of boiling hot water add as much oxalic acid as the water will take. This is technically called a "saturated solution" of oxalic acid. Wet the discolored spots with clean water and immediately apply the acid with a small brush or piece of sponge. This takes effect almost instantly and in most cases brings the wood out perfectly white and clear. Some painters advise leaving the acid on for several hours or overnight, but this does not benefit matters any as the acid has no power to bleach when dried out. If the first coat of acid does not bleach out the spot in ten minutes, apply fresh acid. If the spot still shows dark the only cure is to scrape it with a piece of broken glass or a steel scraper.

After the discolored spots are attended to, wet the whole floor with the acid to make it uniform in whiteness and then wash off the acid with warm water and a sponge.

All this washing has probably raised the grain of the wood somewhat, so the next operation is sandpapering. Use No. 1½ sandpaper, rubbing with the grain of the wood. Dust off carefully and the floor is ready for refinishing, and in the same state that a new floor would be except that the filler is still in the pores of the wood.

If a light floor is wanted simply apply three coats of good varnish.

If it is to be darkened slightly, make a burnt umber stain and apply evenly before varnishing. Two coats of varnish make a fairly good job. Three coats will last much longer and will pay for the extra expense.

The foregoing method applies only to extreme cases and it is seldom that one needs to go to all this trouble. When a floor is not badly worn the only operations necessary are the scrubbing, bleaching the discolored spots, staining these spots to match the rest of the floor, applying a coat of varnish to the spots and varnishing the whole floor.

Waxed floors need different treatment. The old wax must be removed by scrubbing with turpentine or naphtha and a bunch of steel wool. As the wax is loosened scrape it up with a putty knife and wash the floor with a strong soap solution, rinsing with clean water, after which the floor may be treated as before mentioned and varnished.

It frequently happens that floor boards shrink badly, particularly pine floors, showing wide and unsightly cracks. These should be filled in before refinishing. Of course, they are always filled with dirt which must be carefully removed and the cracks dusted out. Do not attempt to fill in these wide cracks with ordinary putty because it will dry up and shrink in a short time and jar out of the floor. There are dozens of

very good crack fillers on the market in prepared form, but if a home-made material is preferred, the following formula will do the work:

Soak white blotting paper in water and squeeze out the excess water. Knead whiting and glue size into this soft paper until it forms a putty, after which it may be colored to suit with dry colors. Wet the cracks with water and press this putty firmly into them, smoothing out as evenly as possible. When dry, sandpaper flush with the surface of the floor.

Another excellent filler is ordinary cornstarch mixed with equal parts of linseed oil and turpentine with sufficient japan drier to set it quickly. Mix this to putty-like consistency and wet the cracks with linseed oil before applying.

Department of Technical Paint Service and Decoration. If you have some special problem of a technical nature that is not covered in this book address your inquiry to us and our Department of Technical Paint Service and Decoration will give it prompt attention.

If you wish decorative color suggestions for one or more rooms, follow instructions given on page 131.

CHAPTER IV

Stucco, Concrete, Brick and Stone Painting

Preparing Brick and Stone Surfaces. If any mortar has become loose and washed out, repoint all such damaged places with mortar or Portland cement before applying any paint. After priming, correct small defects in the surface with putty.

New brick should not be primed until dry. At least two or three days of dry weather should precede painting.

No painting should be done when the temperature is below 50° Fahrenheit.

Preparing Stucco or Concrete. Stucco, concrete work and the mortar in brick or stone work should be allowed to stand and dry at least a year before paint is applied. If painted within a year, it may be aged artificially by washing with a solution made by dissolving two pounds of zinc sulphate in one gallon of water or with ordinary carbonic acid water.

Boiled linseed oil should be used as specified wherever possible, especially on stucco and concrete. If boiled oil is not available, raw oil and a drier may be used.

Formulas for Stucco and Brick. For painting stucco or brick, apply three coats of paint mixed according to the following formulas:

Formula No. 25—Priming Coat

(*Stucco and Brick*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure boiled linseed oil*	6¼ gals.	7 gals.
Pure turpentine	1 gal.	1 gal.
Pure drier	½ pint	.....
Approx. gals. of paint	10⅝ gals.	11 gals.
Coverage, one coat	5,300 sq. ft.	5,500 sq. ft.

Formula No. 26—Second Coat

(*Stucco and Brick*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure linseed oil { ⅓ boiled* / ⅔ raw }	3¼ gals.	4 gals.
Pure turpentine	1 gal.	1 gal.
Pure drier	½ pint	.....
Approx. gals. of paint	7½ gals.	7⅞ gals.
Coverage, one coat	4,500 sq. ft.	4,725 sq. ft.

Formula No. 27—Third Coat, Gloss Finish

(*Stucco, Brick, Concrete, Stone*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure linseed oil { ⅓ boiled* / ⅔ raw }	2¾ gals.	3½ gals.
Pure turpentine	1 pint	1 pint
Pure drier	½ pint	.....
Approx. gals. of paint	6⅛ gals.	6½ gals.
Coverage, one coat	3,675 sq. ft.	3,900 sq. ft.

* If pure boiled linseed oil is not available, use pure raw linseed oil and add pure drier not to exceed 1½ pints in any of the above formulas.

Formula No. 28—Third Coat, Flat Finish

(*Stucco, Brick, Concrete, Stone*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Dutch Boy flatting oil	.....	2 gals.
Pure raw linseed oil	1 pint	.....
Pure turpentine	2 gals.	.....
Pure drier	½ pint	.....
Approx. gals. of paint	5½ gals.	5 gals.
Coverage, one coat	3,300 sq. ft.	3,500 sq. ft.

Formulas for Concrete and Stone. Concrete and stone are not as porous as brick and stucco and should therefore be painted differently. Apply three coats—a priming and a second coat as follows; then a third coat mixed according to either Formula No. 27 or 28.

Formula No. 29—Priming Coat

(*Concrete and Stone*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure boiled linseed oil*	4¼ gals.	5 gals.
Pure turpentine	1 gal.	1 gal.
Pure drier	½ pint	.....
Approx. gals. of paint	8½ gals.	8¾ gals.
Coverage, one coat	4,250 sq. ft.	4,375 sq. ft.

Formula No. 30—Second Coat

(*Concrete and Stone*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure linseed oil { ⅛ boiled* / ⅞ raw }	2¼ gals.	3 gals.
Pure turpentine	½ gal.	½ gal.
Pure drier	½ pint	.....
Approx. gals. of paint	6 gals.	6¼ gals.
Coverage, one coat	3,600 sq. ft.	3,750 sq. ft.

* If pure boiled linseed oil is not available, use pure raw linseed oil and add pure drier not to exceed 1½ pints in either of the above formulas.

Semi-Flat Finish. An excellent semi-flat finish on brick, stone, concrete and stucco can be secured by applying over the second coat one or two coats of paint made according to Formula No. 22, substituting spar varnish for the floor varnish listed in the formula.

For brick-red finish on outside brick, thin the color with Dutch Boy flatting oil.

Painting Concrete Floors. The foregoing priming coat for "Concrete and Stone"—Formula No. 29—may be used in priming concrete floors, but the second and third coats must be made to produce a harder finish than is necessary in the case of concrete and stone walls, as floors are subjected to much more severe usage than walls. The following formulas will produce the hard finish needed:

Formula No. 31—Second Coat

(*Concrete Floors*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	¼ gal.	1 gal.
Pure turpentine	2 gals.	2 gals.
Pure drier	1 pint	1 pint
Approx. gals. of paint	5⅝ gals.	6 gals.
Coverage, one coat	3,375 sq. ft.	3,600 sq. ft.

Formula No. 32—Third Coat

(*Concrete Floors*)

Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Pure raw linseed oil	½ gal.
Pure turpentine	¾ gal.
Floor varnish	1 gal.
Pure drier	½ pint
Approx. gals. of paint	5⅛ gals.
Coverage, one coat	3,075 sq. ft.

When the third coat is dry the floor should be finished by applying a coat of wax or a high-grade floor varnish. When a flat finish is desired, use 2 gallons of Dutch Boy flatting oil and ½ gallon floor varnish in place of the thinners called for in Formula No. 32.

The third coat should be tinted with a little lampblack to match the natural color of concrete.

After the priming coat is dry all cracks and other defects in the floor should be filled with a good putty. The putty should be firmly pressed into the cracks and smoothed over with a putty knife.

Two things to keep in mind throughout the work are: first, vigorous brushing to spread out each coat to the utmost; second, allowing each coat at least four days to dry. One cause of stickiness on floors is flowing the paint on so thick that it does not dry thoroughly underneath, and then hurrying too much with the other coats.

Department of Technical Paint Service and Decoration. If you have some special problem of a technical nature or wish suggestions in regard to some particular phase of decoration send your inquiry to us and our Department of Technical Paint Service and Decoration will give it prompt attention.

CHAPTER V

Metal Painting

Red-lead occupies practically the same position in the field of metal painting that white-lead occupies in the field of house-painting. It is the standard paint for the protection and preservation of iron, steel and other metal surfaces. Red-lead is insoluble in water, not affected by ordinary atmospheric gases, sticks tightly to the surface it covers and is a true rust preventative.

In all kinds of tests, under every conceivable condition, red-lead has stood up better than any other paint material. Nearly all the railroads use it for the protection of cars, bridges and other structures. It is used on vessels in the United States Navy. It protects gas holders for public service corporations, oil tanks for the big oil companies and the steel in skyscraper skeletons. Large users of paint are aware of the value of red-lead as a rust preventative and have learned to rely upon it to keep down maintenance costs.

Nearly every house has eave-troughs, valleys, gutters, down-spouts and flashings in the roof drainage system that should receive red-lead protection. Farm machinery, metal roofs, pipes, water tanks, troughs, fences and many other small and less spectacular things can be made to last long and look well by the timely use of red-lead paint.

In fact, every piece of tin, iron and steel about the premises should be red-leaded if it is to last. Rust is a danger signal that calls for prompt treatment.

Red-Lead in Paste Form. Dutch Boy red-lead is *pure* red-lead, exceedingly fine, highly

oxidized, and ground to a workable paste in pure linseed oil. This pure red-lead in oil mixes and spreads easily. It makes an elastic and durable coating that adheres firmly to metal. It meets the specifications of the navy and other government departments.

Next to the metal, Dutch Boy red-lead should always be used straight (*i.e.*, without tinting pigments). Later coats may be tinted for inspection purposes or to give a desired finishing color.

Dutch Boy red-lead is sold in 12½, 25 and 50 pound steel pails and in 100 pound steel kegs.

Red-Lead Ready for the Brush. The same pure, highly oxidized red-lead used in the paste can also be obtained in liquid form, that is, as a paint all ready to apply. The product is known as Dutch Boy liquid red-lead and, besides coming in the orange-red or natural red-lead color, comes in light brown for the second coat and in dark brown, light green, dark green or black for the finishing coat. Moreover, these five colors and intermediate shades can be secured by adding the proper colors-in-oil to the natural color liquid red-lead.

Dutch Boy liquid red-lead (natural color) is mixed on the basis of 33 pounds of dry red-lead to the gallon of oil. It may be reduced, if desired, to the proportions of 28 pounds of pigment to the gallon of oil by adding one pint of oil to each gallon of paint. For all ordinary purposes, however, Dutch Boy liquid red-lead should be used just as it comes in the package.

Sold in one-gallon cans and 2½ gallon kegs, and large users may purchase it in larger packages on order.

Red-Lead in Dry Form. Red-lead of our manufacture may also be obtained in dry form,

in 12½, 25 and 50 lb. steel pails, in 100 lb. steel kegs, and in 250 and 500 lb. casks.

Area Red-Lead Paint Will Cover. In estimating the quantity of red-lead paint needed for a job, the spreading rate to allow is 600 square feet to the gallon, one coat, although paint made of Dutch Boy red-lead may be expected to cover a considerably greater area—about 700 square feet. This figure is approximate at best, as the covering capacity of any paint varies somewhat according to consistency, how much "elbow grease" is put behind the brush and the condition of the surface being painted. For example, badly pitted and rough metal will take more paint than a perfectly smooth and clean surface. The variation in any case, however, will probably not be enough to throw off the calculations far.

Preparing the Surface. To obtain the best results with red-lead, care should be exercised in applying as well as mixing the paint. A vital point is to clean off all loose rust, dirt and other foreign material before commencing to paint. Wire brushes and scrapers will be found to be effective in removing rust and scale. The sand blast will give good results and is strongly recommended, but thorough scraping and brushing will usually be satisfactory. Rust, the great enemy of iron and steel, is an accelerator of further rusting when it is loose enough to retain moisture. If rust is allowed to remain it will work disaster even after the paint has been applied. Besides, rust and dirt are likely to cause peeling.

Number of Coats. Three coats of paint are necessary on all outside work. Two coats will do for metal indoors. In no case will one coat of paint completely cover bare metal. To the naked eye, the metal may appear to be covered

but under the microscope it is another story. Many small pinholes and air bubbles will be found. Even a second coat will not absolutely cover all these pinholes. A third coat is really necessary. Of course, the more the paint is brushed out, the more the pinholes and air bubbles are worked out. Plenty of good brushing effort is essential to a first-class job.

Mixing the Paint. Paint is made with Dutch Boy paste red-lead exactly as white-lead paint is made with heavy paste white-lead, by simply adding linseed oil a little at a time and stirring constantly with a wooden paddle. Dry red-lead is mixed with oil in the same manner, the only difference being that it is less easy to incorporate with the oil.

If the paint is to be tinted, "break up" or soften the red-lead first with just enough linseed oil to make a workable paste; then add the coloring material and finally the remainder of the oil. When drier is used, put it in after the coloring material and before adding the final oil. (See white-lead mixing directions on page 9 which are similar.)

Applying the Paint. Steel and iron should never be painted during wet weather nor when covered with dew or frost. Early morning painting during the late summer months is not recommended as a usual thing. It is always better to wait until the sun has had time to dry everything out. It is bad practice to attempt painting in freezing weather.

Red-lead paint can best be applied with a round or oval brush. Be sure to use plenty of paint, covering the surface well and not attempting to make a gallon of paint go too far. Pay particular attention to bolts, rivet heads, edges

and corners, as they are more subject to destructive influences than perfectly flat surfaces.

The priming coat is the most important. Extra care and precaution should be taken during its application.

Allow plenty of time between coats for the previous coat to dry thoroughly. A week is not too long, especially for the priming coat.

Formula No. 33—Priming Coat

(*Exterior and Interior Metal*)

Materials	Paste Red-lead	Dry Red-lead
Red-lead	100 lbs.	100 lbs.
Pure raw linseed oil (see note below)	2⅜ gals.	3⅝ gals.
Pure turpentine	1 pint	1 pint
Pure drier	1 pint	1 pint
Approx. gals. of paint	4⅞ gals.	5¼ gals.
Coverage, one coat	2,925 sq. ft.	3,150 sq. ft.

Formula No. 34—Second Coat (Light Brown)

(*Exterior and Interior Metal*)

Materials	Paste Red-lead	Dry Red-lead
Red-lead	100 lbs.	100 lbs.
Pure raw linseed oil (see note below)	2⅜ gals.	3½ gals.
Pure lampblack-in-oil	12 oz.	13 oz.
Pure turpentine	1 pint	1 pint
Pure drier	1 pint	1 pint
Approx. gals. of paint	4⅞ gals.	5¼ gals.
Coverage, one coat	2,925 sq. ft.	3,150 sq. ft.

NOTE: If genuine boiled linseed oil is available, such as Dutch Boy boiled oil, we advise the use of one-third boiled oil to two-thirds raw oil. In this case, omit the drier.

The lampblack is added to the red-lead for the second coat to change the color of the paint to a light brown, which enables the painter to see readily if any places have not been covered properly. Moreover, a slightly shaded second coat facilitates the inspection of the final coat in the same way.

Formula No. 35—Third Coat (Dark Brown)

(*Exterior and Interior Metal*)

Materials	Paste Red-lead	Dry Red-lead
Red-lead	100 lbs.	100 lbs.
Pure raw linseed oil (see note on page 95)	3⅝ gals.	5 gals.
Pure lampblack-in-oil	6 lbs.	6½ lbs.
Pure turpentine	1 pint	1 pint
Pure drier	1 pint	1 pint
Approx. gals. of paint	6¾ gals.	7⅜ gals.
Coverage, one coat	4,050 sq. ft.	4,425 sq. ft.

Dark Finishes. Where a dark color is desired other than the browns secured by shading red-lead with lampblack, decorative finishes such as greens and black, are obtainable by simply adding tinting materials to Dutch Boy red-lead.

Formulas for tinting Dutch Boy paste red-lead light and dark green and black follow:

Formula No. 36—Third Coat (Light Green)

(*Exterior and Interior Metal*)

Materials	Amounts
Dutch Boy paste red-lead	100 lbs.
Pure raw linseed oil (see note page 95)	5½ gals.
Medium chrome yellow-in-oil	30 lbs.
Chinese blue-in-oil	12 lbs.
Pure turpentine	1 pint
Pure drier	1 pint
Approximate gallons of paint	9¾ gals.
Coverage, one coat	5,850 sq. ft.

Formula No. 37—Third Coat (Dark Green)

(*Exterior and Interior Metal*)

Materials	Amounts
Dutch Boy paste red-lead	100 lbs.
Pure raw linseed oil (see note page 95)	4 gals.
Medium chrome yellow-in-oil	12½ lbs.
Chinese blue-in-oil	7½ lbs.
Pure turpentine	2 pints
Pure drier	2 pints
Approximate gallons of paint	7½ gals.
Coverage, one coat	4,500 sq. ft.

Formula No. 38—Third Coat (Black)

(*Exterior and Interior Metal*)

Materials	Amounts
Dutch Boy paste red-lead	100 lbs.
Pure raw linseed oil (see note page 95)	14 gals.
Lampblack-in-oil	52 lbs.
Chinese blue-in-oil	16 lbs.
Pure turpentine	½ gal.
Pure drier	½ gal.
Approximate gallons of paint	24⅜ gals.
Coverage, one coat	14,625 sq. ft.

Intermediate shades of green and brown may be secured by varying the amount of coloring matter used. Where the formulas given are altered to any great extent, however, be sure that the amount of linseed oil used is increased or decreased accordingly.

Light Finishes. In cases where decorative finishes are desired other than the dark ones obtainable by tinting Dutch Boy red-lead, use pure white-lead and linseed oil, tinted, for the last two coats on exterior work and for the last coat on interior work. White-lead and linseed

oil are especially adapted for use over red-lead and linseed oil because linseed oil dries much the same with the two pigments, and therefore makes a homogeneous film.

The following white-lead second and final coats will be found to give good results generally over a priming coat of red-lead:

Formula No. 39—Second Coat

(*Exterior Metal*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	¾ gal.	1½ gals.
Pure turpentine	1½ gals.	1½ gals.
Pure drier	1 pint	1 pint
Approx. gals. of paint	5⅝ gals.	6 gals.
Coverage, one coat	3,375 sq. ft.	3,600 sq. ft.

Formula No. 40—Third Coat

(*Exterior Metal*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	2¼ to 2¾ gals.	3 to 3½ gals.
Pure turpentine	1 pint	1 pint
Pure drier	1 pint	1 pint
Approx. gals. paint	5¾ to 6¼ gals.	6 to 6½ gals.
Coverage, one coat	3,450 to 3,750 sq. ft.	3,600 to 3,900 sq. ft.

The final coat can be adapted to any tint desired by putting in the proper tinting materials. Where considerable additional tinting material is required, add linseed oil and turpentine equal to one-half the weight of the tinting material.

Where white or an exceptionally light tint is desired, two coats of white-lead paint should also be used on interior work in order to obscure totally the red-lead undercoat. In such cases, apply the second as well as the final coat given above, adding about one ounce of lampblack to the second coat of paint to throw it off the pure white. The practice of adding lampblack should be followed also for the second coat on exterior work if the finish is to be light.

A very attractive light gray, which will in one coat (if applied fairly heavy) hide the red-lead undercoating, can be obtained with the following formula:

Formula No. 41—Third Coat
(Light Gray)
(Exterior Metal)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
French ochre-in-oil	8 oz.	8 oz.
Lampblack-in-oil	4 oz.	4 oz.
Pure raw linseed oil	3¼ gals.	4 gals.
Pure turpentine	1 pint	1 pint
Pure drier	1 pint	1 pint
Approx. gals. of paint	6¾ gals.	7⅛ gals.
Coverage, one coat	4,050 sq. ft.	4,275 sq. ft.

Painting Metal Ceilings. Painting metal ceilings with red-lead or white-lead paint will practically eliminate the most common trouble experienced with interior sheet-metal work of this type, the formation of rust spots.

Where the ceiling is to be finished in white or a very light tint, it is recommended that all the coats, including the priming coat, be of white-lead.

For priming, use the following:

Formula No. 42—Priming Coat

(*Interior Metal*)

Materials	Amounts
Dutch Boy or Carter heavy paste white-lead	100 lbs.
Pure raw linseed oil	2 gals.
Pure turpentine	1 gal.
Pure drier	1 pint
Approximate gallons of paint	6 gals.
Coverage, one coat	3,600 sq. ft.

The second coat should be mixed as follows:

Formula No. 43—Second Coat

(*Interior Metal*)

(a) Materials	Amounts
Dutch Boy or Carter heavy paste white-lead	100 lbs.
Dutch Boy flatting oil	2 to 2½ gals.
Approximate gallons of paint	5 to 5½ gals.
Coverage, one coat	3,500 to 3,850 sq. ft.

or

(b) Materials	Amounts
Dutch Boy or Carter heavy paste white-lead	100 lbs.
Pure raw linseed oil	½ gal.
Pure turpentine	2 gals.
Pure drier	1 pint
Approximate gallons of paint	5½ gals.
Coverage, one coat	3,300 sq. ft.

If a flat finish is desired, the third or final coat should be made as follows:

Formula No. 44—Third Coat, Flat Finish
(*Interior Metal*)

(a) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Dutch Boy flatting oil	2 to 2½ gals.
Approximate gallons of paint	5 to 5½ gals.
Coverage, one coat	3,500 to 3,850 sq. ft.

or

(b) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Pure turpentine	2 gals.
Floor varnish	1 pint
Pure drier	½ pint
Approximate gallons of paint	5 gals.
Coverage, one coat	3,000 sq. ft.

If an eggshell finish is preferred, use the following for the third coat:

Formula No. 45—Third Coat, Eggshell Gloss Finish
(*Interior Metal*)

(a) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Dutch Boy flatting oil	1½ to 2 gals.
Floor varnish	¾ gal.
Approximate gallons of paint	5¼ to 5¾ gals.
Coverage, one coat	3,675 to 4,025 sq. ft.

or

(b) Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	100 lbs.
Pure turpentine	1½ to 2 gals.
Floor varnish	¾ gal.
Pure drier	½ pint
Approximate gallons of paint	5¼ to 5¾ gals.
Coverage, one coat	3,150 to 3,450 sq. ft.

Painting Galvanized Iron. No paint can be recommended honestly to stand up satisfactorily on galvanized iron at all times because the coating left by the galvanizing process has a tendency to repel paint. Sometimes the paint takes hold properly right away; other times considerable difficulty is encountered in making the paint adhere.

It has been the experience of practical painters that paint made of pure red-lead and linseed oil gives good results most consistently. The best results are obtained after the galvanized iron has been exposed to the weather at least six months.

Apply three coats of paint mixed according to the following formulas:

Formula No. 46—Priming Coat

(*Galvanized Iron*)

Materials	Amounts
Dutch Boy paste red-lead	100 lbs.
Pure raw linseed oil (see note page 95)	2⅜ gals.
Pure turpentine	1 pint
Pure drier	1 pint
Approximate gallons of paint	4⅞ gals.
Coverage, one coat	2,925 sq. ft.

Do not merely spread the priming coat upon the metal and expect it and succeeding coats to

stick at all hazards. Brush the paint out well and use enough pressure to force it into every microscopic irregularity in the surface. Many an otherwise good job of painting on galvanized iron has gone wrong simply because the paint was not brushed on "close," as the painters say.

Formula No. 47—Second Coat

(*Galvanized Iron*)

Materials	Amounts
Dutch Boy paste red-lead	100 lbs.
Pure raw linseed oil (see note page 95)	2⅜ gals.
Lampblack-in-oil	12 oz.
Pure turpentine	1 pint
Pure drier	1 pint
Approximate gallons of paint	4⅞ gals.
Coverage, one coat	2,925 sq. ft.

Third Coat

(*Galvanized Iron*)

Mix the third coat similar to the second coat except where a decorative finish is desired other than the slightly shaded red-lead color. In the latter case, substitute one of the tinted red-lead finishing coats on pages 96 and 97, or use instead white-lead paint, tinted, mixed and applied in accordance with directions on pages 97 to 99.

Painting Radiators. Pipes and radiators never before painted should first be cleaned thoroughly with wire brushes to remove all traces of rust, dirt and grease. Then apply a priming coat of red-lead paint based on Formula No. 46.

In the case of pipes and radiators that have been painted before and that show some defect such as blistering or peeling, the old finish should be removed and the foregoing priming coat applied. If the old finish shows no defects, the priming coat may be omitted.

In the painting of pipes and radiators the decorative requirements of the room should be considered. The finish may be in aluminum or bronze, or in some light tinted paint which will harmonize with the color scheme of the room. The metallic powders, if these are used, should be thinned to suitable painting consistency with a mixture of one part good varnish and two parts Dutch Boy flatting oil. This makes an excellent bronzing liquid.

If a light-tinted flat paint is decided upon, apply a second coat, tinted to approximately the color desired in the finishing coat, based on Formula No. 43. Then follow with the finishing coat tinted to the desired color and mixed according to the above formula or, if a semi-gloss finish is desired, according to Formula No. 45. When a full gloss is desired, a good prepared enamel may be employed for the finishing coat.

Ample time should be permitted to elapse between coats so that each may dry and harden thoroughly before the next is applied. If it is possible to permit the steam to pass gradually through the pipes between coats, the drying may be hastened in this way. However, the steam should not be turned on full. If the pipes are submitted to sudden heating, the coating will undoubtedly be affected.

It should also be kept in mind that almost all light tints show a tendency to darken slightly due to heat. This should be taken into consideration when the color is selected.

Handbook on Metal Painting. If you are concerned with the painting of large metal structures—buildings, bridges, tanks, etc.,—write us for a copy of "Structural Metal Painting." This booklet is devoted entirely to metal painting and treats the subject fully from all angles.

CHAPTER VI

Boat Painting

The practice in painting boats is regulated largely by one thing—the type of craft. If a boat is a yacht or a launch, the owner aims to keep it always clean and bright. Its appearance is a matter of pride with him. Hence the handsomest job obtainable is none too fine, and coat upon coat of paint is often applied in order to get an unusually fine finish.

A rowboat, on the other hand, is not a show boat. While the possessor of one or a fleet of them wants a job that looks well, only an ordinarily good finish is called for.

When it comes to canoes an altogether different problem is presented. , A high-class finish is wanted, but it is not obtained in the same way, because a canoe is usually built of canvas.

For present purposes, therefore, boats have been classified into three groups: Power and Sail Boats; Row Boats; Canvas Canoes. In this order, directions for painting them are taken up.

Power and Sail Boats. The outside of the hull, deck-house and some parts of the interior are proper subjects for the paint brush. Some of these parts should receive attention at least every year.

Preparing the Surface. If the wood is new, dust it off carefully and cover all knots and sappy streaks with orange shellac. The shellac can be made by thinning dry orange gum shellac with good quality denatured alcohol, proportioned on the basis of three pounds of shellac to one gallon of alcohol, or the liquid shellac may be purchased as "3 pound cut pure orange shellac." Brush the shellac on thin. If it is put

on too thick the paint will alligator, leaving the knots bare.

Painting the Hull. Prime the new wood with a thin coat of paint mixed as follows:

Formula No. 48—Priming Coat

(*Boat Exterior*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	3¼ gals.	4 gals.
Pure turpentine	2 gals.	2 gals.
Pure drier	1 pint	1 pint
Approx. gals. of paint	8⅝ gals.	9 gals.
Coverage, one coat	4,950 sq. ft.	5,175 sq. ft.

After the priming coat has dried thoroughly, fill all cracks, nail-holes, dents and other defects in the surface carefully with putty. The hardest and most serviceable putty is that based on white-lead. It should consist of Dutch Boy or Carter white-lead, either soft or heavy paste, stiffened to putty consistency with dry whiting.

Use sandpaper to smooth down the rough places. Then apply a second coat of paint, mixed as follows:

Formula No. 49—Second Coat

(*Boat Exterior*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	½ gal.	1¼ gals.
Dutch Boy flatting oil (or turpentine)	1¼ gals.	1¼ gals.
Pure drier	1 pint	1 pint
Approx. gals. of paint	5⅛ gals.	5½ gals.
Coverage, one coat	3,075 sq. ft.	3,300 sq. ft.

Repeat the second coat as many times as desired. Many boatmen put on five or six coats brushed out very thin. Without question this is the best practice, as a number of thin coats produces much better results than the same thickness of film produced by putting on two or three thick coats.

Finish with a coat of paint mixed as follows:

Formula No. 50—Finishing Coat

(*Boat Exterior*)

Materials	Amounts
Dutch Boy or Carter heavy paste white-lead	100 lbs.
Dutch Boy flatting oil (or turpentine)	2 gals.
Spar varnish	½ gal.
Approx. gals. of paint	5½ gals.
Coverage, one coat	3,300 sq. ft.

The preceding formula gives a "flat" or glossless finish, which wears much better under exposure to the water than a glossy paint rich in oil.

Painting Deck, Spars and Outside of Cabin. Use the same formulas for the priming and second coats on the deck, spars and outside of the cabin as for painting the hull. Then apply the following finishing coat. Be sure to allow plenty of time between coats for the preceding coat to become dry, at least forty-eight hours.

Formula No. 51—Gloss Finishing Coat

(*Boat Exterior*)

Materials	Soft Paste	Heavy Paste
Dutch Boy white-lead or Carter white-lead	100 lbs.	100 lbs.
Pure raw linseed oil	2¼ gals.	3 gals.
Pure turpentine	1 pint	1 pint
Pure drier	1 pint	1 pint
Approx. gals. of paint	5¾ gals.	6 gals.
Coverage, one coat	3,450 sq. ft.	3,600 sq. ft.

Painting the Interior. New woodwork inside of cabins, saloons, etc., should first receive a thin coat of good orange shellac. Sandpaper the shellac when dry. Putty all nail-holes and joints. Then apply a priming coat mixed as follows:

Formula No. 52—Priming Coat

(*Boat Interior*)

(a) Materials	Amounts
Dutch Boy or Carter heavy paste white-lead	100 lbs.
Dutch Boy flatting oil	2 to 2½ gals.
Approximate gallons of paint	5 to 5½ gals.
Coverage, one coat	3,500 to 3,850 sq. ft.

or

(b) Materials	Amounts
Dutch Boy or Carter heavy paste white-lead	100 lbs.
Pure turpentine	1½ gals.
Floor varnish	¼ gal.
Pure drier	¼ pint
Approximate gallons of paint	4¾ gals.
Coverage, one coat	2,850 sq. ft.

Follow with a second coat, mixed as follows:

Formula No. 53—Second Coat

(*Boat Interior*)

Materials	Amounts
Dutch Boy or Carter heavy paste white-lead	100 lbs.
Dutch Boy flatting oil (or pure turpentine)	2½ gals.
Floor varnish (If turpentine is used, add ½ pint pure drier)	1 pint
Approximate gallons of paint	5⅝ gals.
Coverage, one coat	3,375 sq. ft.

If an eggshell gloss is desired, apply a finishing coat mixed as follows:

Formula No. 54—Finishing Coat, Eggshell Gloss
(*Boat Interior*)

Materials	Amounts
Dutch Boy or Carter heavy paste white-lead	100 lbs.
Dutch Boy flatting oil (or pure turpentine)	2½ gals.
Floor varnish	½ gal.
(If turpentine is used, add ½ pint pure drier)	
Approximate gallons of paint	6 gals.
Coverage, one coat	3,600 sq. ft.

Note: If an extra fine finish is desired, draw the oil from the white-lead in the case of all three coats. See directions on page 74.

If a gloss finish is desired, the finishing coat should consist of three pounds of Dutch Boy or Carter heavy paste white-lead, made into a thick paste with turpentine, and thinned with one gallon of pale varnish.

Tints. The finishing coats specified for the hull, the deck, the spars and the outside and inside of the cabin make white paint. Where a colored paint is desired, tint the final coat in each case as directed on pages 7 and 19.

Painting Metal Parts. Iron and steel hulls, masts or other metal parts of a vessel should be painted with two coats of Dutch Boy red-lead, thinned according to the following formula:

Formula No. 55
(*Metal Work on Boats*)

Materials	Amounts
Dutch Boy paste red-lead	100 lbs.
Pure raw linseed oil*	2⅜ gals.
Pure turpentine	1 pint
Pure drier	1 pint
Approximate gallons of paint	4⅞ gals.
Coverage, one coat	2,925 sq. ft.

* If genuine boiled oil is available, use one-third boiled and two-thirds raw oil, omitting the drier.

On ornamental parts, finish with white-lead tinted to suit. (Refer to page 97, paragraph headed "Light Finishes.") Below the waterline, finish with anti-fouling paint, if desired.

Repainting. In repainting, use the same formulas given for painting new work, except that the priming or first coat may be omitted. Old coats should be well smoothed down and the surface dry before new coats are applied.

Row Boats. Do not attempt to paint immediately after taking the boat from the water. Let it dry out thoroughly. No matter how good a paint is it will not stick to a wet surface.

Neither will paint adhere properly to a boat's bottom that is covered with dirt, water plants, marine animals, etc. Clean off all such accumulation by scraping or scrubbing.

Stop up all leaks before applying any paint. Cracks and seams can be filled up with caulking cotton soaked in paste white-lead, nail-holes with bits of pine, and very small leaks with white-lead putty.

Paint applied over an uneven surface is bound to present a bad appearance. Where the old paint is rough, sandpaper it down smooth and touch up all bare spots before applying the first coat.

After heeding the foregoing directions, apply two coats of paint, inside and outside, mixed according to the following formula:

Formula No. 56

(*Row Boats—Exterior and Interior*)

Materials	Amounts
Dutch Boy or Carter } heavy paste white-lead	25 lbs.
Pure turpentine	½ gal.
Spar varnish	½ pint
Approximate gallons of paint	1¼ gals.
Coverage, one coat	750 sq. ft.

If a colored paint is wanted, tint the last coat. The addition of a very little lampblack or drop-black will produce a gray. A little chinese blue will make a light blue. (For other colors follow tinting directions on page 20, using only one-quarter of the quantity of ingredients called for, as Formula No. 56 is based on 25 pounds of white-lead instead of 100 pounds.)

The finish produced by two coats of paint mixed according to Formula No. 56 will be "flat" or lustreless. If a gloss finish is desired, use for the last coat three pounds of white-lead made into a thick paste with turpentine and thinned to spreading consistency with one gallon of pale spar varnish.

Canvas Canoes. When the paint is so badly cracked and broken that the canvas shows through in places, it is best to remove the old coat entirely by means of a paint remover and start anew. After the old paint is off, sand-paper the surface and apply a coat of paint composed of:

Formula No. 57

(Canoes)

Materials	Amounts
Dutch Boy or Carter heavy paste white-lead	4 lbs.
Pure turpentine	1 pint
Spar varnish	½ pint
Pure drier	⅛ gill
Approximate gallons of paint	¼ gal.
Coverage, one coat	150 sq. ft.

Tint as desired.

The above formula should make enough paint for the first coat on one canoe. Put the paint on

thick and work it well into the canvas by careful brushing. When dry, sandpaper the surface and then apply two coats of japan color thinned with spar varnish and just enough turpentine to make the paint brush out smooth. One pint of japan color and one pint of varnish should be sufficient to do the work.

If the old paint on a canoe is in good condition, the white-lead paint need not be applied. Simply sandpaper the old coat down smooth and apply the two coats of japan color and varnish.

To refinish the inside of a canoe, sandpaper the old varnish thoroughly and put on one coat of good spar varnish. One pint of varnish should be sufficient.

Patching. To mend a hole in a canoe, insert a piece of canvas beneath the torn part, pasting the patch on with a little white-lead and rubbing varnish, and clinching it to the ribs of the canoe with brass or copper tacks. Very small holes can be fixed by plugging them with white-lead stiffened slightly with whiting.

CHAPTER VII

Common Painting Defects Their Cause and Cure

In spite of every precaution there are certain types of painting troubles which crop out occasionally and it is the purpose of this chapter in the Handbook on Painting to describe some of the common causes for paint failures and to suggest methods of correcting them.

Paint doesn't fail of its two-fold purpose—to protect and to beautify—unless it is improperly handled, or unless it is asked to do the impossible. Pure white-lead paint, properly mixed and skillfully applied to a surface fit to receive it and exposed to ordinary atmospheric conditions, always does what it is advertised to do—last long, look well during its entire life and wear out gradually, leaving a perfect surface for repainting.

Assuming that the paint you applied conformed to these requirements of proper mixing, brushing and exposure, yet developed certain localized defects, such as cracking and peeling, after the job had stood for some time, the chances are that some defect in the construction of the building was the cause of the failure.

The West Coast Lumbermen's Association undertook to find out just what caused certain types of paint failures on side walls of dwellings. The results of this nation-wide investigation, covering hundreds of complaints, were published in booklet form by the Scientific Section, Educational Bureau, American Paint and Varnish

Manufacturers' Association. Some of the findings of this investigation are given here.

As has been pointed out, jobs of painting sometimes develop localized defects, the cause of which is hard to determine. Almost without exception the trouble can be attributed to moisture. Long known as the worst enemy of paint, it has been proved that if moisture is allowed to get behind the paint film because of some defect in the construction of a building, it will do the same kind of damage it causes if paint is applied directly over it. Everyone knows that surfaces should be painted when dry, but if the timber is allowed to become water-soaked from the inside after it is painted, a paint failure will be brought about.

Some of the causes of paint failure, not usually considered as such, are listed here:

Poor fitting of siding material over drip caps on window and door headers.

Poor fitting of siding against casings of doors, windows and corner boards.

Insufficient or incorrect placing of metal flashing where porch or dormers fit into house.

Building a porch skirting down to the ground level with wood touching the moist ground.

Building all or part of house over unconcreted ground which becomes especially fruitful as a cause for trouble when insufficient or no ventilation is provided to carry off vapors rising from open ground.

To cure the paint troubles brought about by any of the above causes, it will be necessary to correct the defect in construction which leads to the paint failure. The paint which is cracking, peeling, scaling, etc., must be removed clear down to the bare wood, the wood allowed to dry out thoroughly and the building defect corrected.

After this, the surface may be painted to stay painted.

Another common cause of paint failure is painting too soon after siding and trim have been exposed to rain. Some painters make the mistake of figuring that a few hours of rainless weather are enough to thoroughly dry out lumber which has actually been saturated as the result of a heavy rain.

Checking and Alligatoring. This defect appears in the form of fine, interlacing lines on the surface of the paint. If the lines criss-cross to form small squares, the defect is called checking; if the lines are far apart, it is called alligatoring. Both are probably due to the same cause, namely, application of a hard unyielding coat over a soft undercoat. While the undercoat may apparently be perfectly dry before the finishing coat is put on, the drying process continues and, since the finishing coat is exposed to the air, it dries more quickly and contracts or shrinks as it dries. This causes the rupture of the outer coat and produces checking or alligatoring. These terms are not to be confused with cracking, since checking and alligatoring indicate merely a rupture of the outer coat of paint, while cracking extends through to the bare wood.

To avoid checking and alligatoring, the undercoats should be as hard as is practicable, relatively harder than the finishing coat. Also plenty of time must be allowed for the undercoats to dry thoroughly.

A surface that has checked or alligatored badly may, of course, be repainted without removing the defective paint, but the finished appearance will be rough and unattractive.

Cracking and Scaling. These two defects are closely related since scaling naturally follows

cracking. On close examination cracking will be found to consist of a rupture of the paint film clear down to the wood. It is this characteristic that distinguishes cracking from checking and alligatoring.

Cracking may occur with the grain of the wood or across it, although usually the cracks run parallel to the grain. Scaling follows cracking almost inevitably because moisture gets through the cracks in the paint film, travels under the paint and causes scaling.

There are two general reasons why paint cracks. One of these is the expansion and contraction of the lumber. The other is the brittleness of the paint, or a too thick and hence too strong a paint film.

Wood is porous and contains at all times some moisture. When it dries out it contracts, chiefly at right angles to the grain. The drying out apparently continues even after the wood has been painted, suggesting that the paint is not perfectly water-tight.

Unless the paint applied to a surface is elastic enough to shrink or expand with it, the film will become ruptured. Cracking may occur, too, on surfaces that have too many coats of paint on them. The thicker the paint film the harder it is for it to accommodate itself to the movements of the surface it covers. A paint like pure lead and oil, in addition to its elastic qualities, always wears out by gradually becoming thinner. Thus a building habitually painted at suitable intervals with lead and oil will rarely be subject to cracking due to a too-heavy paint covering.

In repainting a surface that has cracked and scaled there is nothing to do except to remove all the paint down to the bare wood and to start

anew with pure lead and oil, properly mixed to suit the surface.

Blistering and Peeling. The most common cause of blistering is moisture present in the material behind the paint film. Peeling quite naturally follows blistering, in most cases, since the paint which has blistered no longer grips the surface properly and a comparatively small amount of pressure is sufficient to force it completely from the surface.

In some cases, the heat of the sun is enough to increase the vapor pressure of the moisture in the material so that it will cause blistering. In interiors, it is usually the heat of a radiator or a riser, which causes the trouble. The more moisture-tight a paint is, the more apt it is to blister. Therefore a paint that permits some escape of the moisture behind it, and that grips the surface properly, is less likely to show this trouble.

The best way to avoid blistering is to make sure that the surface to be painted is thoroughly dry. In the case of porch columns which are painted on all sides, it is necessary to be particularly careful because if the moisture is in the column when it is painted, blistering is apt to occur even when pure white-lead paint, which possesses unusual tenacity, is used for the painting. Sometimes, porch columns are pierced, at the top and bottom, to allow ventilation within the column and thus dry out the moisture which may be present.

On repainting a blistered surface, it is necessary to scrape off all the defective paint, allow the wood to dry out thoroughly and repaint as on new work. The priming coat on such work should be permitted to dry for a considerable time and it will be found that this,

if properly designed, will permit the wood to dry out further, and yet will tend to prevent the entrance of moisture from the outside. If leaks or faults in construction are responsible for the presence of moisture, these should of course be properly repaired before anything else is done.

Loss of Gloss and Chalking. A paint may be said to have lost its gloss when the binding material, the linseed oil, has been destroyed by the action of air, moisture and sunlight. Chalking is a further step in the process of disintegration, but must not be considered a true paint defect.

Paint must eventually perish in one of several ways—chalking is one of them and by far the most desirable. It represents a gradually wearing down of the paint, due to the decay of the oil binder, and prevents the piling up of thick coats upon a surface. A chalking paint also affords the right amount of tooth for a new coat of paint to obtain a good anchorage.

Premature chalking is not desirable. It usually is caused by insufficient oil, poor oil or thinning the final coat with too much turpentine. Trying to make one heavy coat of paint do what should be done with two ordinary coats invites rapid loss of gloss and consequent chalking.

The remedy for chalking is repainting with paint containing enough oil to satisfy the absorbent condition of the old paint and finishing with a glossy, elastic final coat.

Washing. This condition occurs when a paint film contains pigments that are soluble in water. It may be noticed in the form of streaks near the lower edge of clapboards and in accumulations on column footings. The material that is dissolved out of the paint will collect in these

places and, when the water evaporates, the streaks can be plainly seen.

Washing of paint occurs chiefly in localities where there is considerable sulphur gas in the air.

Repainting a surface that shows the effects of washing presents the same problems as repainting a chalking surface, namely, the application of paint that will retain its gloss as long as possible.

Spotting. There are several kinds of spotting, but only one is encountered with any degree of frequency. This particular kind of trouble is characterized by spots which may be large or small and which are lighter in color than the rest of the painted surface. They usually show a tendency to chalk excessively. If the spots are moistened with linseed oil, they return to practically the original color of the paint, showing that the tinting color has not been destroyed and that the trouble is simply due to the absorption of the oil in the paint film by the underlying surface.

Spotting is likely to occur over cracks or nail-holes, or over porous spots in lumber which have not been entirely satisfied with linseed oil. Two-coat work on new wood, or one-coat repaint work, would naturally be more apt to show this trouble than painting work in which the right number of coats is used.

When repainting wood which has shown spotting, it is generally advisable to use an additional amount of linseed oil in the first coat, brushing this in well so as to force it into the pores of the wood, satisfying the porosity and establishing a good foundation for the application of the finishing coat.

Discoloration Due to Dirt. This is a defect

which is noted in some localities on white or light tinted paints, and is one over which the painter has comparatively little control. It is true that if paint is mixed so that it dries too slowly, it is more apt to collect dirt and become unsightly before it dries hard.

Discoloration of this sort may be prevented by slightly altering the regular finishing coat formula in localities where road dust, pollen, smoke and other sources of paint discoloration are present in large amounts. The linseed oil may be reduced slightly and the amount of turpentine increased proportionately to make a harder quicker drying paint. It should be kept in mind that the alteration necessary is very small and, if the paint is changed too much, it may become too hard and tend to crack. A good painter can always make such alterations without decreasing the durability of the finished job.

Discoloration Due to Mildew. This paint trouble is fairly common in the South. It is an organic growth which develops a fine network of threads which appear black to the eye but which are fairly transparent under the microscope. Mildew may exist in the wood itself before painting or it may penetrate the paint and enter the wood. It is, of course, a disease of the wood rather than of the paint. Moisture and shade seem to favor its growth.

Mildew may be stopped by adding to the paint a small percentage of mercurous chloride. The paint itself should be mixed with best quality linseed oil and should dry hard and firm.

Discoloration Due to Sulphur. This appears as a brownish or grayish metallic film over the surface of the paint. This film is sulphide of lead and may be destroyed by peroxide of hydrogen. The only chemical compound in the

air which will produce sulphide of lead is sulphuretted hydrogen which is given off from manure and sewage, and is sometimes found around coal mining and oil districts. Discoloration produced by sulphuretted hydrogen in the air is not usually permanent. Often it will make its appearance during a dry spell and disappear in a rainstorm.

The only way to prevent the discoloration of paints by sulphur compounds is to prevent the presence of such compounds.

CHAPTER VIII

General Painting Facts

Simplified Mixing Directions. There are many jobs of painting for which only a comparatively small amount of paint is needed. For jobs of this kind, mix your paint according to the following simplified directions.

Gloss Paint. Paint which gives a gloss finish is used for practically all exterior painting.

To make a gloss paint, mix soft paste white-lead with an equal measure of linseed oil. Then add a gill each of turpentine and drier for every gallon of paint.

Follow identically the same procedure in using heavy paste white-lead except increase the amount of linseed oil slightly and stir it in a little at a time.

These directions give a fairly heavy paint such as is generally used for a gloss finishing coat. If for any reason a thinner paint is wanted, add more linseed oil and turpentine. Thus, for priming new, unpainted wood increase the quantity of paint by half with a mixture of linseed oil and turpentine, using two parts oil and one part "turps."

Flat Paint. Where a dull or so-called "flat" finish is desired, as for interior decoration on either woodwork or plaster walls, a flatting liquid instead of linseed oil should be mixed with the white-lead. The best material for this purpose is Dutch Boy flatting oil, but turpentine may be used if flatting oil cannot be obtained. Dutch Boy flatting oil comes in quart and in one and five-gallon cans. It produces a flat finish which is remarkable for its beauty, washability and durability.

To make flat paint, mix together equal parts of heavy paste white-lead and flatting oil (or turpentine). Pour the flatting liquid into the white-lead a little at a time, stirring thoroughly before adding each additional quantity. If turpentine is used, add one tablespoonful of drier for each pint of paint. If Dutch Boy flatting oil is used, add no drier.

Flat paint, mixed as directed, may be used for undercoats as well as the finishing coat on woodwork and for all coats on plaster except the priming coat. For the priming coat on unpainted plaster, it is better to use a special primer, such as Dutch Boy wall primer, which will seal all fine cracks and porous places in the surface.

Tinting One Gallon of Paint. One of the special advantages of making paint from white-lead is that it can be colored to the exact tint you want simply by adding tinting colors ground in oil.

The more commonly used colors-in-oil may be purchased in one and five-pound cans or in small tubes at most stores where white-lead is sold. Where there is only an ounce or so of tinting material needed, it may be found convenient to buy the tubes of color, but whenever considerable quantities are needed it is advisable to purchase the color in cans for these are, compared to the tube colors, much lower in price.

If difficulty is experienced in obtaining the chinese blue called for in the formulas, prussian blue may be substituted.

In buying colors-in-oil, specify exactly the color desired. It is not sufficient to say "chrome yellow." Medium chrome yellow, the most commonly used, is a deep yellow. Lemon chrome yellow is a lighter, more greenish yellow.

"Chrome green" might mean any one of the

three chrome greens—light, medium or dark. Of these, medium chrome is most satisfactory for general use since it can, by the addition of a little chinese blue and lampblack, be substituted for dark chrome green, or by the addition of a little lemon chrome yellow will answer the purpose for light chrome green. If medium chrome green is not easily obtainable it can be made up by mixing lemon chrome yellow and chinese or prussian blue. It is advisable, however, to use the straight green when possible.

Various grays can be produced by adding lampblack to white-lead. If no black tinting material is at hand, a gray can be produced by using a little chinese blue and venetian red. A gray produced by using lampblack and white-lead may be made warmer by the addition of small amounts of french ochre, venetian red or medium chrome yellow, and may be made cooler by employing a little chinese blue in the mix.

Formulas for securing a number of popular colors are listed below on this page. These formulas give the amount of color-in-oil required to tint one gallon of paint made with white-lead. A lesser or greater quantity of paint may be tinted to the desired color simply by decreasing or increasing proportionately the amount of color-in-oil called for by the formula.

Tint	*Colors-in-Oil*	*Gloss Paint*	*Flat Paint*
Pink	Venetian Red	1⅛ oz.	1¼ oz.
Light Blue	Chinese Blue	½ oz.	¾ oz.
Light Green	Med. Chrome Green	9¾ oz.	13 oz.
Green	Med. Chrome Green	2 lbs.	2¾ lbs.
Cream	Lemon Chr. Yellow	⅛ oz.	1/6 oz.
Yellow	Lemon Chr. Yellow	4¼ oz.	5¾ oz.
Buff	Med. Chrome Yellow	2¾ oz.	3¾ oz.
Light Drab	Burnt Umber	1½ oz.	2 oz.
Dark Drab	Burnt Umber	5 oz.	6¾ oz.
Light Gray	Lampblack	½ oz.	¾ oz.
Dark Gray	Lampblack	1¼ oz.	1¾ oz.

A little venetian red added to any of the above colors except the greens will give a warmer tint. In the case of the greens, the warmer effects are secured by adding yellow. If a colder color is desired, add a little chinese blue to the pink, greens, drabs and grays and a little chrome green with a touch of blue to the cream, yellow and buff. To soften or gray a color, add a little lampblack. To lighten a color, simply use less color-in-oil or more white-lead; to darken it, add more color-in-oil.

As colors-in-oil of different manufacturers vary in strength, the foregoing formulas are at best only approximate. Therefore, add the color-in-oil gradually (stir in a drop or two at a time) and stop when the desired tint is reached, even if the formula calls for more. So also, if the tint is too light, add more color-in-oil until the tint is exactly right. Before adding the tinting colors thin them to about the same consistency as the white paint with linseed oil, flatting oil or turpentine, depending upon whether gloss or flat paint is being used.

How Much Paint to Make. One pound of white-lead paste, thinned as directed under "Gloss Paint" and "Flat Paint," will make about one-half pint of paint or enough to cover about forty square feet of surface, one coat. Other quantities will cover as follows:

Pounds of White-Lead	*How Much Paint It Makes*	*Square Feet It Covers*
5	2½ pints	185
12½	3 quarts	450
25	1½ gallons	900
50	3 gallons	1,800
100	6 gallons	3,600

How Many Coats. Three coats of white-lead paint are recommended for unpainted wood, inside as well as outside. Some people try to make two coats do, but it is mistaken economy. The third coat adds only one-third to the cost and makes twice as good a job. That is, it will look better and last much longer.

Two coats are sufficient in repainting wood if the old paint is in good condition as it serves as a priming coat. Sometimes one coat will be found sufficient.

New plaster should not ordinarily be painted until it has dried for six months. If necessary, however, the walls can be artificially aged by applying a coat of zinc sulphate solution made in the proportion of two pounds of zinc sulphate to a gallon of water.

When painting new plaster walls, three coats should be used. Two coats should be used when old plaster walls are to be painted a different color from the old paint.

Time Between Coats. Allow plenty of time between coats for the paint to dry. Exterior work should be allowed to dry from two to four days before the next coat is applied and interior work at least twenty-four hours.

How to Make Putty. The best putty is made by stiffening paste white-lead to putty consistency with dry whiting. Good painters use no other kind.

Making Joints Tight. White-lead or red-lead paste, just as it comes in the tin or keg, is excellent for making pipe joints gas-tight, water-tight and air-tight. Good plumbers and gas fitters white-lead or red-lead all joints.

Linseed Oil in Sealed Cans. For those who like to buy a guaranteed product, in neat sealed

packages, we recommend Dutch Boy linseed oil in sealed cans. This oil is pure, well settled and superior in every way. It comes in one and five gallon cans, which are sealed at the spout to prevent tampering and bear the Dutch Boy Painter trademark as a guaranty of purity. By buying linseed oil in this way it is possible to be sure of best quality of pure linseed oil at a cost not exceeding a few cents additional for every gallon of paint—a very small amount to pay for insurance that you are getting pure, high quality oil. The one-gallon cans are packed six to a wooden case. The five-gallon cans are packed one to a wooden case.

Brushes and Their Care. Either an oval or a flat wall brush may be used for applying paint on the body of the house or other places where there is plenty of room to spread the paint.

The smaller brushes — trimming or sash brushes they are called—are used for painting sash, narrow trim, spindles, railings, lattice-work, corners, crevices and other parts too small to permit the use of the body brush.

These sash brushes come both in round and flat shapes. The choice between the two is a matter of personal opinion, although the old painters use the round brush, claiming that with the flat brush one is likely to allow the paint to flow rather than brush it in.

In no case are cheap brushes economical. The best brushes are made of bristles, while the cheaper brushes are made of horse-hair and lack the toughness, strength, elasticity or spring, wearing quality and absorbing or paint-holding power of bristle.

There are grades, too, of bristle, and the painter should be careful not to get a brush with

soft and flabby bristles, as a brush of this kind will not spread the paint properly. When this happens one is likely to waste more paint than the saving amounts to in the cost of the brush, to say nothing of the bad results obtained in the painting itself.

The amount of wear that a brush will give depends as much upon its care as upon its use. A brush which receives proper care will outlast two that are neglected. Under no circumstances allow the paint in a brush to dry and harden. When the paint in a brush is allowed to become hard, it is almost impossible to clean the brush and the bristles will never be the same thereafter. Usually it is cheaper to throw away such a brush than to attempt to reclaim it.

Brushes can be cleaned by soaking them in turpentine or benzine and then washing them out with soap powder and hot water. It is good practice also to straighten out the bristles with a comb and when dry to wrap brushes carefully in moisture-proof paper before putting them away.

The value of a brush depends to a large extent on the springiness of its bristles. Once the bristles become soft and flabby, its usefulness is impaired. Putting a brush in water will soon cause the bristles to lose their springiness. For this reason, never keep a brush in water in the hope of keeping it in good condition. When you want to use a brush succeeding days, suspend it in the paint which you have been using or in linseed oil. Never stand a brush on its bristle ends but suspend it in the paint or oil. This may be done by drilling a small hole in the handle of the brush near the top of the ferrule, putting a wire through the hole and laying the wire across the top of the paint or oil container.

Some brushes come with the hole already in them.

Keeping Pigment Soft. Unused portions of a keg of white-lead or red-lead may be kept soft and free from skins by pouring water over the surface to the depth of an inch or more, and keeping the lid on the keg. First of all, however, the lead should be scraped down from the sides of the keg. When the material is to be used frequently it may be more convenient to cut a disk of paper to fit inside the keg and lay it on the lead.

Department of Technical Paint Service and Decoration

If you have some special problem of a technical nature that is not answered in this book address your inquiry to us and our Department of Technical Paint Service and Decoration will give it prompt attention.

If you have some special problem in decorating or color selection to solve, please cover in your inquiry the points that are listed below. This will aid our colorists in selecting suitable schemes of treatment for your specific problem which will be forwarded free of charge, together with samples of the colors recommended, and the formulas required to produce them.

The more information given regarding any problem, the more complete will be the answer concerning it. If blue prints or photographs of the exterior or interior in question are available, these should be forwarded.

Exterior

If you desire a color scheme for the exterior of a building, please give us the information requested below:

1. Type of building.

2. In what direction does it face?

3. Give approximate size of building including width, depth and number of stories.

4. Of what material are the outside walls constructed?

5. Are they painted, stained or natural and what is the present color?

6. Of what material is the roof composed?

7. Is it painted, stained or natural and what is the present color?

8. Describe approximate amount of trim (large, normal or small).

9. Are there window blinds?

10. If there are any gables or porches, state number and location.

11. If there is any foliage near the building, is it plentiful or moderate?

12. What are the principal colors of neighboring buildings?

13. Have you any color preference?

Interior

If you desire color suggestions for the interior of a building, please give us the information requested below:

1. Name each room to be decorated—living room, dining room, bedroom, etc.—indicating exposure (north, south, east or west) in each instance.

2. Give rough floor plan of rooms in building. State dimensions including height of ceiling.

3. Are the walls and ceilings of rough or smooth plaster?

4. Are they papered, painted or calcimined?

5. What is the present color of the wood trim and will it be painted, stained or left natural?

6. Of what color and material is the floor and will it be painted, stained or left natural?

7. Describe color, size and location of fireplaces, wainscot, beams, panels, columns or other architectural details.

8. Describe materials of which floor coverings and furniture are composed, stating dominant color of each.

9. Have you any color preference?

Painting Contract Form

For all ordinary jobs of exterior and interior painting the following contract between painter and property-owner will fill requirements:

(Date) .....

We agree to paint the property located at

(Address) .....

and owned by (Name of owner) .....

.....

doing the work listed herein in accordance with the following specifications:

1. Paint is to be applied only when the surface is thoroughly dry.

2. All surfaces shall be clean, smooth and free from dust, dirt, grease, mortar, loose paint, scale, etc.

3. All paint shall be evenly spread and thoroughly brushed out.

4. On new work, before priming, knots and sappy streaks shall be shellacked with one coat brushed out thin.

5. All exterior work shall be allowed to dry from two to four days before the next coat is applied and for interior work at least twenty-four hours for each coat.

6. All nail-holes, dents, cracks, joints or other defects in the surface shall be puttied after the priming coat has been applied and is thoroughly dry.

7. Before any paint is applied, plaster surfaces, either new or old, must be made clean and

smooth and all cracks and holes filled with patching plaster.

8. Walls that have been calcimined shall be washed until all calcimine is removed before applying any paint.

9. All new plaster, stucco or concrete shall be aged before painting by washing with a solution made by dissolving two pounds of zinc sulphate in one gallon of water.

10. All gloss paint used shall be pure white-lead of Dutch Boy or Carter brand, mixed in proper proportions with pure settled linseed oil, pure turpentine and pure drier. Flat paint shall be pure white-lead of Dutch Boy or Carter brand, mixed in proper proportion with Dutch Boy flatting oil.

11. All material and tools to be furnished by the painting contractor.

(Here list and specify in detail all work to be done.)

Price for all work specified above $.....

Payable .....

(Signed) .....
(Signature of Contracting Painter)

Accepted .....
(Signature of Owner of Property)

Products of National Lead Company

Acetate of Lead

White—Broken, Crystals, Granular, Powdered
Brown—Broken

Acid Concentrating Plants (Simonson-Mantius Vacuum Process)

Chamber Acid
Sludge Acid
Spent Acid

Acid Separating Plants (Simonson-Mantius Vacuum Process)

Sludge Acid

Alloys, Die Casting

Alloys

Lead
Tin
Zinc

Alloys, Slush Mold Casting

Ammunition

Lead Shot
Loaded Shotgun Shells
Metallic Cartridges

Antimonial Lead

Babbitt Metal

Bands, Rain-Water Pipe, Hoyt Hardlead

Bar Tin

Barium Sulphate

Bars, Lead

Barytes

Basic Lead Chromate

Basic Lead Sulphate

Blue
White

Battery Grid Metal
Battery Straps
Bearings
Armature
Bronze Backed, Babbitt Lined
Die-Cast
Frary Metal (Ulco Brand)
Journal
Bends
Flanged
Hardlead
Lead
Blatchford Patented Base
Britannia Metal
Burning Lead
Calking Lead
Cames, Lead
Smooth Faced, Rustic, Antique
Reinforced as well as plain
Carbide
Cartridges (U. S. Brand)
Casket Trimming Metal
Castings, Ornamental or Pipe Fitting
Castor Oil
Chemical Apparatus, Special Lead Lined
Cinch Anchors (See Expansion Bolts)
Clock Weights
Cocks, Plug, Hardlead
Coils
Lead Lined or Lead Covered Copper or Steel
Colors
Dry and in Oil
In Japan

Crestings, Hoyt Hardlead
Elbows, Hoyt Hardlead
Expansion Bolts
  Cinch Anchors
  Cinch Lead Screw Anchors
Ferrules, Combination
Fittings
  Hardlead Flanged
  Lead or Tin Lined, Flanged or Screwed
  Lead Lined Soil Pipe
Finials, Hardlead
Flake White
Flashings, Hoyt Hardlead
Flatting Oil
  For Producing Flat Finishes with White-Lead
Flaxseed, Ground
Flaxseed, Meal
Frary Metal
Gaskets, Lead
Gutters, Hoyt Hardlead
Hammer Metal
Hammers
  Babbitt
  Lead
Hardening Lead
Heads, Rain-Water Pipe, Hoyt Hardlead
Hyposulphite, Lead
  White and Black
Impression Lead, Hoyt's
Lead, Pulverized
Linseed Cake and Meal

Linseed Oil
  Raw, Boiled, Double Boiled, Varnish, etc.
Litharge
Locomotive and Machinery Castings
Magnus Metal Ingots
Mold Metal, Rubber
Music Plates
Needle Metal
Net Leads
Nickel-Bronze
Orange Mineral
Organ Pipe Metal
Ornamental Castings and Stampings, Hoyt Hardlead
Ornaments, Lead
Pewter
Phosphor Bronze Castings
Phosphor Tin
Pig Lead
Pig Tin
Pinking Blocks
Pipe, Rain-Water, Hoyt Hardlead
Pipe
  Block Tin
  Brass Lined and Copper Lined Steel
  Lead (Antimonial, Chemical, Common, Composition)
  Lead, Tin Lined
  Lead or Tin Lined Brass, Copper or Steel
  Lead or Tin Covered Brass, Copper or Steel
  Soil, Lead Lined
Printers Metals (See Type Metals)

Pumps

Hardlead Centrifugal Acid
Tin Lined Hardlead Centrifugal Acid

Red-Lead

Dry and in Oil
Liquid

Pure Red-Lead in Ready to Use Form (In Colors)

Roofing Sheets, Hoyt Hardlead

Sash Weights, Lead

Screws, Brass Trap

Sheet Roofing Metal, Hoyt Hardlead

Sheet Lead

Antimonial, Common, Chemical, Crawlproof (or Reinforced)

Sheet Tin

Shot, Lead

Chilled, Drop, Air Rifle

Shot Shells (U. S. Brand)

Solder

Acid Core
Bar (All Sizes)
Cake
Capping Bar
Drop
Fusible Bar and Wire
Ingot
Meter Bar
Pig
Pulverized
Radiator Bar
Ribbon or Tape
Rosin Core
Segment (Cut Wire)

Sheet
Slabs
Tinners Bar
Triangular Bar
Wire

Spandrels, Hoyt Hardlead

Spelter

Stair Treads, Non-Slip

Stamping Metal

Statuary, Hoyt Hardlead

Swan Necks, Hoyt Hardlead

Tanks, Homogeneous Lead or Tin Lined

Tank Connections, Lead Lined and Covered

Tape, Lead

Tin Bars

Tin Wire

Tint Plates

Titanox

Traps, Lead

Trolley Wheels

Tubes
Tin Lined and Tin Covered Brass, Copper and Steel

Tubing
Block Tin, Composition, Lead, Hoyt Hardlead

Type Metals
Autoplate
Electrotype
Intertype
Linotype
Monotype
Stereotype
Typograph

- **Valves**
  - Hoyt Hardlead
  - Lead and Tin Lined Acid
- **Wall Primer**
- **Washers, Lead**
- **Wedge Lead**
- **White-Lead**
  - Coach and Car
  - Dry
  - Grinders' Special
  - In Oil
    - Regular Grind (or Heavy Paste)
    - Soft Paste (Ground with More Oil for Ease in Mixing)
  - Pulp
- **Wire**
  - Iron, Lead Coated
  - Lead
  - Lead-Copper
- **Wool, Lead**

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DUTCH BOY SOFT PASTE WHITE-LEAD

Pure lead-in-oil in easy-to-mix form. Thins to paint in a jiffy.

DUTCH BOY HEAVY PASTE WHITE-LEAD

Pure white-lead ground in pure linseed oil to heavy paste consistency. The standard for years.

DUTCH BOY LINSEED OIL

Guaranteed pure, well-settled linseed oil with a minimum of foots. Sealed packages.

DUTCH BOY FLATTING OIL

The ideal thinner for white-lead for making flat or egg-shell, washable wall paint. Also an excellent glazing, blending and bronzing liquid.

DUTCH BOY WALL PRIMER

A special primer for use as first coat in painting plaster with white-lead. Hides as it seals as it spreads.

DUTCH BOY LIQUID RED-LEAD

Pure red-lead paint in ready-to-use form. Six colors: Natural red-lead color, Black, Light Brown, Dark Brown, Light Green and Dark Green.

DUTCH BOY RED-LEAD

Pure, highly oxidized red-lead in paste form. Unexcelled for painting metal.

CARTER WHITE-LEAD

(Soft Paste and Heavy Paste)

This well-known brand of strictly pure white-lead is also made by National Lead Company. White, fine, uniform.

Look For The Dutch Boy Trademark

THIS famous little character, our Dutch Boy Painter trademark, is put on our products as a means of identification and as a protection to the buyer against substitution. He stands for purity of paint materials and signifies certain satisfaction.

You will find the Dutch Boy Painter on all packages of Dutch Boy white-lead, both soft paste and heavy paste, Dutch Boy linseed oil, Dutch Boy flatting oil, Dutch Boy wall primer, Dutch Boy red-lead, both paste and liquid, and on other products of our manufacture.

Look for the Dutch Boy trademark—it assures you of a product made to fit the needs of the job in hand.